

ADMINISTRATIVE ACTION
DRAFT ENVIRONMENTAL IMPACT STATEMENT

U.S. Department of Transportation
Federal Highway Administration
and

Florida Department of Transportation

Financial Project Number: 249614-4-22-01

Federal Aid Project Number: Not Assigned


SR 997 / SW 177th Avenue / Krome Avenue South
from SW 296th Street (Avocado Drive) to SW 136th Street (Howard Drive)
Miami-Dade County, Florida

This project proposes roadway and safety improvements along a ten-mile segment of SR 997/SW 177th Avenue/Krome Avenue from SW 296th Street (Avocado Drive) to SW 136th Street (Howard Drive) in Miami-Dade County, Florida. The existing facility is a two-lane undivided rural roadway. The proposed action is to improve safety by providing four-lane divided rural and suburban sections, additional capacity, and implementing access management criteria.

Submitted Pursuant to 42 U.S.C. 433 (2) (c).

11-6-13

Date


Acting Division Administrator
Federal Highway Administration

At this point in time, based on previous public input, early agency coordination, engineering information and environmental studies, which are currently available for public review, Alternative 5 is currently considered the recommended alternative by FDOT. The FHWA is also considering Alternative 5 as the preferred alternative. However, the FHWA will make the final determination on a preferred alternative once alternative impacts and agency comments on the DEIS and public input resulting from the public hearing have been fully evaluated. Unless new information is brought forward through the public and agency comment period, the FHWA intends to select Alternative 5 as the preferred alternative.

The FHWA will issue a single Final Environmental Impact Statement and Record of Decision document pursuant to Pub. L. 112-141, 126 Stat. 405, Section 1319 (b) unless the FHWA determines statutory criteria or practicability considerations preclude issuance of the combined document pursuant to section 1319.

For additional information contact:

Aileen Bouclé, AICP
Intermodal Systems Development Manager
Florida Department of Transportation
1000 NW 111th Avenue, Room 6111-A
Miami, Florida 33172
Telephone: (305) 470-5201
Facsimile: (305) 470-5205
aileen.boucle@dot.state.fl.us

or

David Hawk
Division Administrator (Acting)
U.S. Department of Transportation
Federal Highway Administration
Florida Division Office
545 John Knox Road, Suite 200
Tallahassee, Florida 32303
Telephone: (850) 553-2200, ext. 2203
Facsimile: (850) 942-9691
David.Hawk@dot.gov

Comments must be received by the District Intermodal Systems Development Manager at the address above

By: 12/30/13



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LIST OF ACRONYMS

AN	Advance Notification
BMPs	Best Management Practices
CDMP	Comprehensive Development Master Plan
CO	Carbon Monoxide
CRAS	Cultural Resources Assessment Survey
DCA	Department of Community Affairs ¹
DERM	Department of Environmental Resources Management ²
DRER EMRD	Department of Regulatory and Economic Resources, Environmental Monitoring and Restoration Division
DRI	Development of Regional Impact
EEL	Environmentally Endangered Lands
ESBA	Endangered Species Biological Assessment
ETDM	Efficient Transportation Decision Making
FAC	Florida Administrative Code
FDACS	Florida Department of Agriculture and Consumer Services
FDEO	Florida Department of Economic Opportunity
FDEP	Florida Department of Environmental Protection
FDOT	Florida Department of Transportation
FEMA	Federal Emergency Management Agency
FWC	Florida Fish and Wildlife Conservation Commission
FHWA	Federal Highway Administration
FIHS	Florida Intrastate Highway System
FLUCFCS	Florida Land Use, Cover, and Forms Classification System
GIS	Geographic Information Systems
LOS	Level of Service
LRTP	Long Range Transportation Plan
LUST	Leaking Underground Storage Tank
MDPROS	Miami-Dade County Parks, Recreation, and Open Spaces Department
MPH	Miles Per Hour
MPO	Metropolitan Planning Organization
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NEPA	National Environmental Policy Act
NGVD	National Geodetic Vertical Datum

¹ In 2011, the Florida Department of Community Affairs (DCA) was renamed to the Florida Department of Economic Opportunity (FDEO); however, both the old and new names are used throughout, depending on the timeframe of the reference.

² In 2012, the Miami-Dade County Department of Environmental Resources Management (DERM) was renamed to the Miami-Dade County Department of Regulatory and Economic Resources (DRER), Environmental Monitoring and Restoration Division (EMRD); however, both the old and new names are used throughout, depending on the timeframe of the reference.





LIST OF ACRONYMS

NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
PD&E	Project Development and Environment Study
SFWMD	South Florida Water Management District
SHPO	State Historic Preservation Officer
SHS	State Highway System
SIS	Strategic Intermodal System
STIP	State Transportation Improvement Program
TIP	Transportation Improvement Program
UDB	Urban Development Boundary
USACE	United States Army Corps of Engineers
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
UST	Underground Storage Tank





SUMMARY

This National Environmental Policy Act (NEPA) study was conducted for the Krome Avenue (South) project to evaluate and comprehensively examine various alternatives for roadway and safety improvements to a ten-mile segment of Krome Avenue (SR 997/SW 177th Avenue) from SW 296th Street (Avocado Drive) to SW 136th Street (Howard Drive) in unincorporated Miami-Dade County, Florida (see [Figure 1-1](#)). A corridor analysis was conducted first and then alternatives were developed along the recommended corridor. These alternatives included the No-Build Alternative, a Transportation System Management (TSM) Alternative, an Action Plan Alternative, and five build alternatives. The primary focus of this study was to identify the location, type, and size of improvements that would address the deficiencies along this portion of the roadway network in Miami-Dade County. Due to the project's potential for substantial controversy (as identified during the public involvement process and Citizen's Advisory Committee meetings), the level of study required to examine project impacts was determined to be an Environmental Impact Statement. The study seeks a solution that most effectively addresses the project needs while minimizing environmental impacts. Other minor safety projects have been implemented at various intersection locations along the corridor over the past ten years; however, the cumulative effect of those improvements has not completely met the overall need for this project, which is to address safety deficiencies along the entire study segment of the Krome Avenue corridor.

PROPOSED ACTION

The Florida Department of Transportation (FDOT) is evaluating roadway and safety improvement alternatives along a ten-mile segment of SR 997/SW 177th Avenue (Krome Avenue) from SW 296th Street (Avocado Drive) to SW 136th Street (Howard Drive). The Krome Avenue study corridor is located in the southern portion of unincorporated Miami-Dade County, Florida. Krome Avenue is part of the State Highway System and the Strategic Intermodal System (SIS), and it is also considered a major regional connector in South Florida.

A Project Development and Environment (PD&E) Study was initiated as part of the planning process. The objective of this PD&E Study is to provide documented environmental and engineering analyses. This study will help the FDOT and the Federal Highway Administration (FHWA) in reaching a decision on the type, conceptual design, and location of the necessary improvements along the roadway corridor.

The PD&E Study will consider improvements to the existing facility by developing solutions to the current deficient and substandard conditions of the roadway. In the future, the existing conditions are expected to further degrade, thereby requiring the implementation of major improvements.

The need for improvements on this corridor is based on a combination of safety, physical and functional deficiencies within the corridor plus overall capacity needs. The primary objective of the project is to address safety deficiencies along this section of the Krome Avenue corridor. The secondary objectives of the project are to provide additional capacity to accommodate





anticipated future area travel demand and to address other design deficiencies along the roadway. Additional secondary objectives include maintaining the effectiveness of the corridor as an emergency evacuation route and improving regional connectivity.

The type of improvements warranted include the widening of Krome Avenue from SW 296th Street to SW 136th Street, the replacing of the bridge and dual-pipe culvert crossing the C-103/Mowry and C-102/Princeton canals, respectively, improving the drainage systems, and providing adequate access management and overall traffic operations throughout the corridor.

OTHER MAJOR GOVERNMENT ACTIONS

Within the vicinity of the Krome Avenue study corridor, other potential city, county, state, or federal governmental actions which could occur within the timeframe of the Krome Avenue improvements include:

- Krome Avenue (North) (SW 136th Street/Howard Drive to SR 25/US 27/Okeechobee Road) (FDOT)
- Krome Avenue Truck Bypass (FDOT)
- Krome Avenue Canal [South Florida Water Management District (SFWMD)]
- SR 836 Southwest Extension (Miami-Dade County Expressway Authority)
- L-31N Canal Expansion (SFWMD)

Other projects that occur within the region but not in the direct vicinity of the Krome Avenue project are discussed in *Table 4-18*.

ALTERNATIVES CONSIDERED

Project alternatives considered during the study included alternate corridor options, typical section concepts, intersection layouts, shared-use path options, drainage treatment options, and traffic operations. Other areas of the study included maintenance of traffic, constructability issues, utilities, soils and geotechnical issues, socioeconomic and environmental impacts, construction segments, right-of-way costs, and bridge replacement design considerations. All alternatives were evaluated in terms of engineering, environmental, and socioeconomic aspects.

Alternate Corridors Evaluated

Three alternate corridor locations were considered in addition to the existing Krome Avenue corridor within the PD&E study limits. The following are the alternate corridors that were evaluated (see *Figure 2-2a* through *Figure 2-2c* on pages 2-5 through 2-7):

1. SW 187th Avenue/Redland Road;
2. SW 182nd Avenue/Roberts Road;
3. SW 177th Avenue/Krome Avenue (existing); and
4. SW 167th Avenue/Tennessee Road.





Any relocation of the existing corridor will require major social adjustments and produce impacts that result in substantial increases to noise levels. A relocation of the existing corridor would also maintain the existing unsafe and substandard conditions along Krome Avenue and at intersections with local cross streets. Additionally, the Krome Avenue corridor provides regional connectivity that cannot be adequately replaced by any of the other corridors in the near future.

Based on an evaluation of the corridor alternates, as presented in the evaluation matrix (see [Table 2-1](#) on page 2-21), it was determined that **Corridor Alternate # 3** (Krome Avenue) is the most viable corridor for the improvement project. As a result, the existing SR 997/Krome Avenue/SW 177th Avenue corridor was selected and recommended for further consideration.

No-Build Alternative

The No-Build Alternative assumes that no improvements would be implemented within the corridor. With this alternative, the existing roadway would be maintained “as is,” with a two-lane, undivided typical section. The lack of grass median and adequate shoulders, the substandard drainage and water quality treatment facilities, the non-optimized traffic operations, and the existing safety deficiencies would be retained. This alternative is considered viable during the public hearing and final selection phase to serve as a comparison to the other study alternatives. However, the No-Build Alternative fails to fulfill the needs of this project for the area.

Transportation System Management Alternative

This alternative involves selectively upgrading deficient roadway areas with improved signage, turn lanes, pavement markings and traffic signals. Improvements consistent with this alternative have already been applied and maximized along this corridor and additional similar improvements will not satisfy the safety, capacity, and traffic operations needs along this section of roadway. Most of the TSM improvements (intersection improvements) were incorporated into the corridor as short-term improvements. The congestion along Krome Avenue is caused by a lack of through-lane capacity and high turning volumes. The TSM analysis did not substantially enhance the operation of the signalized intersections or alleviate safety issues associated with this corridor and did not include drainage improvements. Long-term improvements are necessary to mitigate the existing safety deficiencies, increase capacity to accommodate future travel demand, improve access management, and provide stormwater management. Therefore, further consideration of the TSM alternative was eliminated from the analysis.

Action Plan Alternative

The Krome Avenue Action Plan was developed in 1997 and approved by the Metropolitan Planning Organization (MPO) in 1999. The primary purpose of the plan was to identify and evaluate alternatives for transportation improvements other than additional general use lanes and restrictive medians along Krome Avenue. A two-lane undivided typical section with roadway improvements was recommended for implementation for Krome Avenue from SW 296th Street/Avocado Drive to US 27. The Krome Avenue Action Plan’s original typical section was





revised by the project team in order to comply with FDOT criteria for reconstruction of a facility. The updated typical section was used during this study as a comparison with the proposed study alternatives. Both of the Action Plan Alternatives include a two-lane facility with a two-foot wide center painted buffer median. The Action Plan “original” and “modified” Alternatives both fail to fulfill the needs of this project for the area, including providing a grass median to separate northbound and southbound traffic, providing additional capacity, and providing a facility that adheres to the access management requirements. Therefore, both the “original” and the “modified” Action Plan Alternatives were eliminated from further consideration.

Alternative Typical Sections Considered

A total of 46 typical sections were developed during the initial alternative analysis. These conceptual alternatives were categorized by the number of lanes: ten two-lane undivided typical sections, eight two-lane divided typical sections, eight three-lane undivided typical sections, four two-lane divided typical sections with passing lanes, 15 four-lane divided typical sections, and one five-lane undivided typical section. The development of these typical sections was based on established design controls for the various elements of the project such as roadway width, median width, shoulder width, design speed, horizontal alignment, vertical alignment, drainage considerations, and intersecting roads. The selection of the appropriate criteria and standards was influenced by safety features, traffic volumes and composition, levels of service, functional classification, environmental considerations and community issues.

After the initial evaluation of the 46 conceptual typical sections, five alternatives were identified to move forward, in addition to the No-Build, TSM and the Action Plan Alternatives. The five alternatives were considered viable with respect to public support. Alternatives 1 through 4 are rural for the entire study length and Alternative 5 is a combination of rural and suburban typical sections. These five build alternatives were developed based on the Florida Intrastate Highway System (FIHS)/SIS criteria and the *Plans Preparation Manual* criteria using a design speed of 65 miles per hour (MPH) for the rural typical section and 55 MPH for the suburban typical section.

Proposed Alternatives

The five typical sections developed for Krome Avenue from SW 296th Street to SW 136th Street as part of the engineering analysis of this study are detailed in the sections below:

Alternative 1 – Two-Lane Divided Rural Roadway (see *Figure 2-9* on page 2-36)

This alternative would consist of the following elements: One 12-foot wide travel lane in each direction; 40-foot wide depressed grass median with inside shoulders; two eight-foot wide inside shoulders (two-foot paved and six-foot unpaved); two 12-foot wide outside shoulders (five-foot paved and seven-foot unpaved); 10-foot wide two-way shared-use path parallel to the southbound travel lanes; ten-foot wide roadside swale parallel to the southbound travel lanes; 22-foot wide roadside swale on the northbound direction; eight-foot wide grass harmonization area between the swale parallel to the northbound travel lanes and the right-of-way line; eight-foot wide grass horizontal clearance/harmonization between the shared-use path and the right-of-way line; design speed of 65 MPH;





recoverable terrain (clear zone) of 36 feet from the edge of pavement; border width of 30 feet from the outside shoulder point; and a total typical section width of 148 feet.

Alternative 2 – Two-Lane Divided Rural Roadway with Passing Zones (see *Figure 2-10* on page 2-37)

Alternative 2 is the same as Alternative 1 with the addition of one 12-foot wide passing lane. Total typical section width is 160 feet. This typical section calls for a minimum of one passing zone segment area throughout the length of the project between SW 168th Street and SW 136th Street. Each passing zone segment would consist of one passing lane per direction alternatively.

Alternative 3 – Four-Lane Divided Rural Roadway (see *Figure 2-11* on page 2-38)

This alternative would consist of the following elements: Two 12-foot wide travel lanes in each direction; 54-foot wide depressed grass median with inside shoulders; two eight-foot wide inside shoulders (four-foot paved and four-foot unpaved); two 12-foot wide outside shoulders (five-foot paved and seven-foot unpaved); 10-foot wide two-way shared-use path parallel to the southbound travel lanes; 12-foot wide roadside swale parallel to the southbound travel lanes; 24-foot wide roadside swale parallel to the northbound travel lanes; 16-foot wide grass horizontal clearance/harmonization between the shared-use path and the right-of-way line; 16-foot wide grass harmonization area between the swale parallel to the northbound travel lanes and the right-of-way line; design speed of 65 MPH; recoverable terrain (clear zone) of 36 feet from the edge of pavement; border width of 40 feet from the outside shoulder point; and a total typical section width of 206 feet. This typical section is in compliance with the FHIS/SIS facility design criteria.

Alternative 4 – Four-Lane Divided Rural Roadway (see *Figure 2-12* on page 2-39)

This alternative would consist of the following elements: Two 12-foot wide travel lanes in each direction; 40-foot wide depressed grass median with inside shoulders; two eight-foot wide inside shoulders (two-foot paved and six-foot unpaved); two twelve-foot wide outside shoulders (five-foot paved and seven-foot unpaved); 10-foot wide two-way shared-use path parallel to the southbound travel lanes; ten-foot wide roadside swale parallel to the southbound travel lanes; 22-foot wide roadside swale parallel to the northbound travel lanes; eight-foot wide grass horizontal clearance/harmonization between the shared-use path and the right-of-way line; eight-foot wide grass harmonization area between the swale parallel to the northbound travel lanes and the right-of-way line; design speed of 65 MPH; recoverable terrain (clear zone) of 36 feet from the edge of pavement; border width of 30 feet from the outside shoulder point; and a total typical section width of 172 feet.

Alternative 5 – Four-Lane Divided Rural/Suburban Roadway (see *Figure 2-13a* and *Figure 2-13b* on pages 2-40 and 2-41)

This alternative would consist of two distinct typical sections: a suburban section from SW 296th Street to 272nd Street and a rural section from SW 272nd Street to SW 136th Street.





The suburban section would consist of the following elements: Two twelve-foot wide travel lanes in each direction; 22-foot wide raised grass median with curb and gutter; two four-foot wide paved inside shoulders; two eight-foot wide outside shoulders (five-foot paved and three-foot unpaved); 10-foot wide two-way shared-use path parallel to the southbound travel lanes; eight-foot wide roadside swale parallel to the southbound travel lanes; 20-foot wide roadside swale parallel to the northbound travel lanes; seven-foot wide grass horizontal clearance/harmonization between the shared-use path and the right-of-way line; seven-foot wide grass harmonization area between the swale parallel to the northbound travel lanes and the right-of-way line; design speed of 55 MPH; recoverable terrain (clear zone) of 30 feet from the edge of pavement; border width of 35 feet from the outside shoulder point; and a total typical section width of 148 feet.

The rural section would consist of the following elements: Two 12-foot wide travel lanes in each direction; 40-foot wide depressed grass median with inside shoulders; two eight-foot wide inside shoulders (two-foot paved and six-foot unpaved); two 12-foot wide outside shoulders (five-foot paved and seven-foot unpaved); 10-foot wide two-way shared-use path parallel to the southbound travel lanes; eight-foot wide roadside swale parallel to the southbound travel lanes; 18-foot wide roadside swale parallel to the northbound travel lanes; seven-foot wide grass horizontal clearance/harmonization between the shared-use path and the right-of-way line; nine-foot wide grass harmonization area between the swale parallel to the northbound travel lanes and the right-of-way line; design speed of 65 MPH; recoverable terrain (clear zone) of 36 feet from the edge of pavement; border width of 27 feet from the outside shoulder point; and a total typical section width of 166 feet.

At this point in time, based on previous public input, early agency coordination, engineering information and environmental studies, which are currently available for public review, Alternative 5 is currently considered the recommended alternative by FDOT. The FHWA is also considering Alternative 5 as the preferred alternative. However, the FHWA will make the final determination on a preferred alternative once alternative impacts and agency comments on the DEIS and public input resulting from the public hearing have been fully evaluated. Unless new information is brought forward through the public and agency comment period, the FHWA intends to select Alternative 5 as the preferred alternative.

The FHWA will issue a single Final Environmental Impact Statement and Record of Decision document pursuant to Pub. L. 112-141, 126 Stat. 405, Section 1319 (b) unless the FHWA determines statutory criteria or practicability considerations preclude issuance of the combined document pursuant to section 1319.





ENVIRONMENTAL IMPACTS

The environmental impacts of the project alternatives are discussed below. If no adverse environmental impacts are anticipated for a particular impact topic, the details can be found in the main portion of the document.

Nondiscrimination

This project has been developed in compliance with FDOT's nondiscrimination program. In accordance with 23 CFR Part 200 and 49 CFR Part 21, the FDOT will not discriminate on the basis of race, color, national origin, sex, age, handicap/ disability or income status. No person may be treated unfavorably, excluded from participating in or denied the benefits of any FDOT program or activity because of their race, color, national origin, age, sex, handicap/ disability or income status. The FDOT will not retaliate against any person who complains of discrimination or who participates in an investigation of discrimination.

Relocations

All of the build alternatives will require acquisition of additional right-of-way along the study corridor. In general, the proposed project, depending on the alternative chosen, will cause the relocation of properties ranging from four to ten residences, three to six businesses, and one to four personal properties. The FDOT does not anticipate a disproportionate impact on minority or low income communities as a result of these relocations. The FDOT will carry out a right-of-way and relocation program in accordance with Florida Statute 339.09 and the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646, as amended by Public Law 100-17).

Cultural Resources

The *Cultural Resource Assessment Survey* (CRAS), conducted in 2005, identified three historic resources which were determined to be eligible for listing on the National Register of Historic Places (NRHP): the Howard Schaff Residence (8DA9674), the Clarence J. Parman Residence (8DA9675), and the Redland Golf Course (8DA10051). The CRAS Addendum prepared in 2012 identified the three previously identified resources and one additional historic resource, the Seaboard Air Line (CSX) Railroad (8DA10753), which was determined to be eligible for listing on the NRHP. The FHWA has determined that the proposed project improvements will have no adverse effect on the historic resources identified during the 2005 CRAS and subsequent 2012 CRAS Addendum, except for the removal of the large mango trees in front of the Howard Schaff Residence with implementation of Alternative 3; alternatives 1, 2, 4, and 5 would not require removal of the large mango trees and would not have an adverse impact on the Howard Schaff Residence or any of the other identified historic properties. The State Historic Preservation Officer (SHPO) concurred with this finding in a letter dated August 24, 2012.





Section 4(f)

Of the ten sites that were initially considered for potential Section 4(f) involvement in this study, five of these sites (Camp Owaissa Bauer/Everglades Archery Range, Owaissa Bauer Pineland Preserve Addition No. 2 and No. 3, and the SFWMD canal maintenance access roads) were not evaluated as potential Section 4(f) resources for the reasons discussed in the following section. Uses at the five remaining properties [Owaissa Bauer Pineland Preserve Addition No. 1, the Howard Schaff and Clarence J. Parman residences, the Redland Golf Course, and the Seaboard Air Line (CSX) Railroad] have the potential to be impacted by the proposed build alternatives. The FDOT has assessed the following historic properties based on each build alternative and, in concurrence with FHWA, has determined that there is no Section 4(f) use for the following resource/build alternative combinations:

- Clarence J. Parman Residence (8DA9675) for Alternatives 1, 2, 4, and 5
- Howard Schaff Residence (8DA9674) for Alternatives 1, 2, 4, and 5

All work in proximity to these resources for the identified build alternatives will occur inside the existing FDOT right-of-way. In addition, the SHPO has made a Determination of Effects finding of “No Adverse Effect” for all of these combinations.

Section 6009(a) of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, Pub. L. 109-59, amended existing Section 4(f) legislation at Section 138 of Title 23 and Section 303 of Title 49, United States Code, to simplify the processing and approval of projects that have only a *de minimis* finding on lands protected as a Section 4(f) resource. In accordance with this policy, the following build alternatives qualify for a *de minimis* finding for the following historic resources, based on limited right-of-way acquisition:

- Clarence J. Parman Residence (8DA9675) for Alternative 3
- Redland Golf Course (8DA10051) for Alternative 1 through 5
- Seaboard Air Line (CSX) Railroad (8DA10753) for Alternative 1 through 5

For the Clarence J. Parman Residence, the required strip of right-of-way will not result in any alterations to the features that contribute to the property’s eligibility for the NRHP. The residence will be approximately 65 feet from the edge of the roadway pavement as part of Alternative 3. The SHPO made a Section 106 Determination of “No Adverse Effect;” therefore this meets the qualifications for a *de minimis* finding under Section 4(f).

A strip of right-of-way is required from the 121-acre Redland Golf Course property. This strip, which also features a number of non-native trees, acts as a buffer between the golf course and the roadway and is located outside of the golf course’s existing fence. There will be no alterations to the physical dimensions of the historic, playable golf course property or course layout as a result of the roadway improvements and right-of-way acquisition. For all alternatives (including Alternative 3, which has the greatest impact, at 1.1 acres), the required strip of right-of-way represents less than 1% of the total area of the Redland Golf Course property. Therefore, this meets the qualifications for a *de minimis* finding under Section 4(f).





The right-of-way needed for this project across the Seaboard Air Line Railroad will similarly have no effect on the purpose or function of the resource. There will be no changes to the features which render it NRHP-eligible. The corridor is already a transportation facility and will continue to serve the same purpose after the project is completed. The SHPO made a Section 106 Determination of Effects finding of “No Adverse Effect” for all five build alternatives across this resource. Therefore, this meets the qualifications for a *de minimis* finding under Section 4(f).

While all build alternatives would move the roadway and associated traffic, noise, and visual impacts closer to the identified resources, none of them will be adversely affected by the project under Section 106 criteria/standards. As there are no indirect adverse effects to the resources, a constructive use impact evaluation under Section 4(f) is not applicable. Based on this information and the Section 106 determination of “No Adverse Effects” to these resources and concurrence by the SHPO, these activities meet the qualifications for a *de minimis* Section 4(f) finding. The FHWA concurred with

The FHWA concurred with and approved the FDOT’s recommendation of a Section 4(f) *de minimis* finding for these resources in an email dated August 28, 2013:

In reviewing the revised information, the SHPO concurrence letter, the previous information provided that includes the 2/7/13 responses to the FHWA De Minimis Questionnaire, our 7/14/13 teleconference to discuss the Section 4(f) impacts, and ... field review on 7/24/13 ... the [FHWA] has sufficient information at this time to determine that some of the alternatives will have only a de minimis Section 4(f) impact on some of the resources. Specifically, FHWA agrees with your recommendation and has determined that the following build alternatives, as proposed, will have a de Minimis impact under Section 4(f) for the following historic resources:

- *Clarence J. Parman Residence (8DA9675) for Alternative 3*
- *Redland Golf Course (8DA10051) for Alternative 1 to 5*
- *Seaboard Air Line (CSX) Railroad (8DA10753) for Alternative 1 to 5*

For the Howard Schaff Residence, Alternative 3 would require removal of the large mango trees in front of the residence. The FHWA has determined that removal of these trees constitutes an adverse effect under Section 106, and the SHPO has concurred with this finding. Removal of these trees would also constitute a Section 4(f) finding. Therefore, in order to move forward with Alternative 3, an Individual Section 4(f) Evaluation would need to be prepared to evaluate the Section 4(f) use caused by removal of these trees. However, Alternative 3 is not the FDOT recommended alternative for this project. If Alternative 3 is determined to be the FHWA preferred alternative for this project after the public hearing has occurred, an Individual Section 4(f) Evaluation will need to be prepared.





Noise

Design year (2040) traffic noise levels for Alternatives 1 and 2 (typical section widths of 148 feet and 160 feet, respectively) are predicted to approach or exceed the Noise Abatement Criteria (NAC) at three residences. With Alternative 3 (the widest typical section width of 206 feet), design year traffic noise levels are predicted to approach or exceed the NAC at 15 residences (including the Clarence J. Parman Residence, a residence eligible for NRHP-listing) and at the Florida Audubon Society property. Alternatives 4 and 5 are predicted to result in noise impacts at 13 residences (including the Clarence J. Parman Residence) and at the Florida Audubon Society property due to their slightly narrower typical sections of 172 feet for Alternative 4 and 148 feet and 166 feet for the suburban and rural typical sections of Alternatives 5, respectively. No sites are expected to experience any substantial noise level increases as defined by the FDOT [i.e., greater than 15.0 dB(A) over existing levels] with the build alternatives.

In accordance with FHWA requirements, noise abatement was considered for all noise sensitive locations where design-year traffic noise levels were predicted to equal or exceed the FDOT NAC for residential land use (including the Clarence J. Parman Residence) and for impacted areas at the privately-owned Florida Audubon Society property. A total of ten noise barriers were evaluated for feasibility and reasonableness. The results of this analysis indicate that construction of the noise barriers appears feasible. However, none of the noise barriers are considered reasonable since they either were unable to reduce noise levels by the FDOT's noise reduction design goal [7.0 dB(A) for at least one benefitted receptor] or their estimated construction cost exceeded the FDOT's cost reasonableness criteria (\$42,000 per benefitted receptor site). Thus, none of the noise barriers evaluated for this study are recommended for further consideration and there are no apparent solutions available to mitigate the noise impacts at the impacted locations. The traffic noise impacts to these noise sensitive sites are considered to be an unavoidable consequence of the project.

Wetlands/Surface Waters

Wetland surveys of the project study area were conducted by project biologists in 2004 and 2010. No areas with characteristics indicative of jurisdictional vegetated wetlands or waters of the United States, as defined by Section 404 of the Clean Water Act, were observed within or adjacent to the project study area. This includes natural wetland communities as well as swales or other manmade stormwater features. Therefore, no impacts (direct or indirect) to jurisdictional wetlands are anticipated as a result of implementation of any of the build alternatives.

Three areas characterized as surface waters consisting of two community types were identified and assessed. Alternative 1 would directly impact approximately 0.14 acres of surface waters; Alternative 2 would directly impact approximately 0.14 acres of surface waters; Alternative 3 would directly impact approximately 0.34 acres of surface waters; Alternative 4 would directly impact approximately 0.21 acres of surface waters; and Alternative 5 would directly impact approximately 0.15 acres of surface waters. Since the waterways will remain virtually intact following the proposed construction activities, the proposed impacts are expected to be minimal.





Contamination

Twelve sites of potential concern were identified for the Krome Avenue study corridor: four sites rated as High risk, seven sites rated as Medium risk, and one site rated as Low risk. For all of the build alternatives (Alternatives 1 through 5), the potential contamination concerns are nearly equivalent due to the proximity of the contamination concerns to the existing roadway (all of the sites are directly adjacent to the existing roadway). However, the information available in the Environmental Data Resources, Inc. report and/or from the regulatory agencies did not clearly define the presence, location or extent of site contamination within the FDOT's right-of-way. Due to this uncertainty, further investigation is warranted for some of these sites. The FDOT will utilize the information contained in this report to determine the extent of additional investigation. A Level 2 Contamination Assessment investigation will be conducted prior to any right-of-way acquisition, should any become necessary, and/or prior to the design phase. Based on the findings of updated future review and Level 2 investigation, the design engineers may be instructed to avoid the areas of concern or to include special provisions with the plans to require that the construction activities performed in the areas of concern be performed by a Contamination Assessment and Remediation contractor specified by the FDOT.

Wildlife and Habitat

The results of the *Endangered Species Biological Assessment* indicate that only negligible adverse impacts to federally-protected animal species and no adverse impacts to federally-protected plant species are anticipated as a result of the proposed project. For each of the build alternatives (Alternatives 1 through 5), the potential listed species impacts have been determined to be nearly equivalent due to the similar configuration of the estimated limits of construction for each alternative along the study corridor, with the exception of the Owaissa Bauer Pineland Preserve Addition No. 1 (a Miami-Dade County EEL protected pineland), where impacts have been substantially reduced through the design of a minimized roadway typical section, and the Florida Audubon Society property. The FDOT and the FHWA have made the following affect determinations regarding federally-threatened and endangered species: “*may affect, but not likely to adversely affect*” for the West Indian manatee, American alligator, and Eastern indigo snake; and “*no effect*” for the wood stork, Everglade snail kite, deltoid spurge, Garber’s spurge, and tiny polygala plants. A concurrence letter to be issued by the U.S. Fish and Wildlife Service (USFWS), fulfilling the requirements of Section 7(c) of the Endangered Species Act, is expected following submittal of the *Endangered Species Biological Assessment* and public availability of this *Draft Environmental Impact Statement*.

Since complete avoidance of the EEL parcel was not possible, additional engineering analysis was conducted resulting in a “Minimization Treatment” that would reduce the potential impacts to the Owaissa Bauer Pineland Preserve Addition No. 1 site to the greatest extent practicable while maintaining safe engineering practices (i.e., roadway geometry, etc.) (see [Section 4.3.12.1](#) for additional details). The minimization treatment reduces the overall proposed improvements to Krome Avenue at the Owaissa Bauer Pineland Preserve Addition No. 1 site by a linear distance range of 18 to 31 feet in width and reduces the impact area from a range of approximately 0.84 acres (Alternatives 1 and 2) to 1.27 acres (Alternative 3) to a minimum impact range of





approximately 0.53 acres (Alternatives 1 and 2) to 0.82 acres (Alternative 3) depending on which build alternative the treatment is applied to. With the minimization treatment applied to Alternatives 1 and 2, an additional 0.31 acres of the Owaissa Bauer Pineland Preserve Addition No. 1 site will be preserved. With the minimization treatment applied to Alternative 3, an additional 0.45 acres of the site will be preserved. With the minimization treatment applied to Alternative 4, an additional 0.31 acres of the site will be preserved. With the minimization treatment applied to Alternative 5, an additional 0.26 acres of the site will be preserved. With the minimization treatment applied to the typical sections, the majority of remaining impacts will occur within the westernmost edge of the site, which appears to be regularly disturbed by mowing, vehicle off-road parking and pedestrian traffic. In addition, as part of the minimization treatment, several protection measures will be provided for the remainder of the Owaissa Bauer Pineland Preserve Addition No. 1 site through the addition of guardrail and possibly fencing along the Krome Avenue side of the site (pending approval from the Miami-Dade County EEL Program representatives). During the final design phase of the project, in order to approve a proposed easement within the Owaissa Bauer Pineland Preserve Addition No. 1 site, the Florida Department of Environmental Protection requires submittal of the "Upland Easement Application" to the State of Florida Board of Trustees of the Internal Improvement Trust Fund for review to apply for easement interest in the land. The application requires a resolution from the Miami-Dade County Board of County Commissioners and written approval from the managing agency (Miami-Dade County EEL and Miami-Dade County Parks, Recreation and Open Spaces).

Farmlands

The FDOT has coordinated the evaluation of farmland conversion impacts for the project with the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS). The *Farmland Conversion Impact Rating for Corridor Type Projects* (Form NRCS-CPA-106) was completed on January 9, 2012. All five alternatives intersect the same map units and the relative values of the Farmland (Part V) are very similar. For each build alternative, the potentially converted farmland was assigned a Land Evaluation Information Criterion Relative Value ranging from 19.7 points (Alternatives 1, 2, 4, and 5) to 19.9 points (Alternative 3) out of 100 (Part V). The FDOT determined a maximum Corridor Assessment Criteria score of 60 (out of 160) (Part VI), and thus, the Total Points score ranged from 79.7 points (Alternative 1, 2, 4, and 5) to 79.9 points (Alternative 3) out of 260. In accordance with Chapter 28-2.4.4 of the *PD&E Manual*, a total score of less than 160 is considered as minimal impacts to farmlands and no additional evaluation is necessary. Final coordination with NRCS will occur following approval of the FDOT recommended alternative and selection of the FHWA preferred alternative.

Cumulative Impacts

Based on the impact analyses in Chapter 4 of this document, no adverse direct or indirect impacts will occur to wetlands, water quality, floodplains, air quality, visual/aesthetic resources, or bicycle and pedestrian features; therefore, cumulative impacts for these resource topics were not analyzed. The potential cumulative impacts from the combined actions of this project and





other past, present, and reasonably foreseeable future actions in the areas of influence were evaluated for this project. The details of this evaluation can be found in [Section 4.3.18](#).

The past, present, and reasonably foreseeable future actions would have a beneficial cumulative impact on the social and economic characteristics of the area of influence. This project would contribute an adverse increment to the cumulative impact; however, the FDOT will continue to conduct public involvement activities for this project and other FDOT roadway projects to minimize all negative impacts to the maximum extent practicable.

The past, present, and reasonably foreseeable future actions could have both beneficial and adverse effects on the land use within the area of influence; however, this project has been determined to be consistent with the four-lane facility identified in the Transportation Element of the Miami-Dade County Comprehensive Plan.

The past, present, and reasonably foreseeable future actions could have an adverse cumulative impact on utilities and railroads in the area of influence, causing potential relocations of utilities and railroad crossings; however, the FDOT will continue to coordinate with utilities and railroad representatives during the design phase of the project to minimize impacts to the maximum extent practicable.

Due to the restricted area of influence for the NRHP-eligible resources evaluated for this project, none of the other projects in the region would be expected to have an effect on these resources. Therefore, there would be no cumulative impacts to historic resources within the area of influence from the combination of the proposed improvements from this project and other past, present, and reasonably foreseeable future actions.

Due to the restricted area of influence for the Section 4(f) resources evaluated for this project, none of the other projects in the region would be expected to have an effect on the Section 4(f) resources evaluated for this project. Therefore, there would be no cumulative impacts to Section 4(f) resources within the area of influence from the combination of the proposed improvements from this project and other past, present, and reasonably foreseeable future actions.

Due to the restricted area of influence for the specific resources evaluated for this project, none of the other projects in the region would be expected to have any impacts on these specific resources. The past present and reasonably foreseeable future actions could have both beneficial and adverse effects on recreational and parklands within the area of influence. This project would contribute a minor to moderate negative increment to the cumulative effect, depending upon the alternative chosen. However, due to the restricted area of influence for the specific resources discussed above, none of the other projects listed above would be expected to have any impacts on these specific resources.

The past, present, and reasonably foreseeable future actions could have an impact from noise within the area of influence, and this project could contribute to the unavoidable adverse effects. However, roadway projects such as the Krome Avenue project are often required for the safety of those traveling the roadway. Thus, the noise impacts, which have been minimized to the





maximum extent practicable while still providing the necessary safety improvements, are considered an unavoidable and acceptable consequence.

The extent of contamination identified along the Krome Avenue (South) corridor (the areas directly adjacent and the lands adjoining) appears to be localized to the study area. Taking this into consideration, it is anticipated that the collective impact of the past, present, and reasonably foreseeable future FDOT projects will likely not contribute to unacceptable cumulative impacts from the localized contamination.

The past present and reasonably foreseeable future actions could have both beneficial and adverse effects on wildlife and habitat within the area of influence. This project is only anticipated to contribute a negligible to minor increment to the cumulative effect.

The past, present, and reasonably foreseeable future actions would not be anticipated to have adverse cumulative impacts to farmlands within the area of influence.

AREAS OF CONTROVERSY

The Krome Avenue corridor has been the subject of many FDOT studies (dating back to the 1980s) and several applications to amend the Miami-Dade County's Comprehensive Development Master Plan (CDMP), which proposed the widening of the roadway from two to four lanes.

In 2002, FDOT conducted two separate traffic and safety studies (*SR 997/Krome Avenue Existing Level of Service (LOS) Study* and *SR 997/Krome Avenue Future Conditions Analysis and Mitigation Measures*) on Krome Avenue. The purpose of the first study was primarily focused on LOS and safety issues and the results of this study clearly demonstrated the need for LOS and safety improvements along the Krome Avenue corridor. The second study detailed the problems with passing maneuvers on a two-lane undivided Krome Avenue. The principal recommendation of the latest study was the creation of a four-lane section in order to address the safety issues associated with the passing maneuvers.

In 2002, the Miami-Dade County Board of County Commissioners amended the Miami-Dade Comprehensive Development Master Plan and changed the designation of Krome Avenue from a "Minor Roadway" to "Major Roadway" on the 2005 and 2010 Land Use Plan Map and changed the Plan Year 2015 roadway network to reflect Krome from two to four lanes. That plan amendment was found "in compliance" by the State Department of Community Affairs. That compliance determination was challenged. After litigation, the compliance finding was upheld. This followed recognition by the Miami-Dade County Board of County Commissioners of the safety issues on the existing two lane corridor.

The CDMP has been updated and continues to show Krome as four lanes for its entire length on the planned year 2025 roadway network map. Krome continues to be identified as a state principal arterial on the roadway functional classification map for 2025. Krome remains designated as a major route on the designated evacuation route – 2015 map in the CDMP.





The Miami-Dade MPO Long Range Transportation Plan (LRTP) has been updated since the Notice of Intent for this project. In the 2035 LRTP Krome Avenue is shown as a 2035 cost-feasible segment improvement and the various Krome segments are shown as part of the 52 projects that satisfy the criteria for regional projects.

Miami-Dade County has conducted a required periodic review of the CDMR through the Evaluation and Appraisal Report (EAR) process and adopted its 2010 EAR in March 2011. The EAR does not identify any major issues with the designation of Krome Avenue and did not propose any changes to its designation. No changes to the roadway classification of Krome Avenue were proposed in the EAR.

As recommended by the Krome Avenue Action Plan, beginning in 2003 the FDOT began providing additional interim safety improvements by widening a number of intersections along the study corridor to provide right and left turn lanes which promote traffic through-movements and reduce the likelihood of rear-end collisions. Those safety improvement projects were completed by 2007. Also, in 2004, the FDOT initiated this PD&E study, with a commitment to the MPO to fully evaluate both two-lane and four-lane typical section alternatives.

The controversy surrounding this project has been historically based on concerns regarding project-related potential land use changes and additional growth and development in the area. These concerns are well documented in the CAC meeting minutes and supporting documentation.

LIST OF OTHER GOVERNMENT ACTIONS REQUIRED

Both the U.S. Army Corps of Engineers (USACE) and SFWMD regulate impacts to wetlands/surface waters within the project area. Other agencies, including the U.S. Environmental Protection Agency, National Marine Fisheries Service, USFWS, Florida Department of Environmental Protection (FDEP), and Florida Fish and Wildlife Conservation Commission, typically review and comment on permit applications. The following permits are anticipated to be required for this project regardless of the alternative selected: SFWMD Environmental Resource Permit, SFWMD Right-of-Way Occupancy Permit, SFWMD Water Use Permit (Construction Dewatering), USACE Section 404 Dredge and Fill Permit, and FDEP National Pollutant Discharge Elimination System Permit. During the final design phase of the project, in order to approve a proposed easement within the Owaissa Bauer Pineland Preserve Addition No. 1 site, the Florida Department of Environmental Protection requires submittal of the "Upland Easement Application" to the State of Florida Board of Trustees of the Internal Improvement Trust Fund for review to apply for easement interest in the land. The application requires a resolution from the Miami-Dade County Board of County Commissioners and written approval from the managing agency (Miami-Dade County EEL and Miami-Dade County Parks, Recreation and Open Spaces).





PROBABLE ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

All of the build alternatives will require acquisition of additional right-of-way along the study corridor and associated relocations, as discussed in the *“Community Cohesion (Relocations)”* section above.

Traffic noise impacts to noise sensitive sites are anticipated to occur and are considered to be an unavoidable consequence of the project, as discussed in the *“Noise”* section above. None of the noise barriers evaluated are considered reasonable since they either were unable to reduce noise levels by the FDOT’s noise reduction design goal or their estimated construction cost exceeded the FDOT’s cost reasonableness criteria. Thus, none of the noise barriers evaluated for this study are recommended for further consideration and there are no apparent solutions available to mitigate the noise impacts at the impacted locations.

Complete avoidance of the Owaissa Bauer Pineland Preserve Addition No. 1 (a Miami-Dade County EEL protected pineland) was not possible, as discussed in the *“Wildlife and Habitat”* section above.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Complete avoidance of the Owaissa Bauer Pineland Preserve Addition No. 1 (a Miami-Dade County EEL protected pineland) was not possible, as discussed in the *“Wildlife and Habitat”* section above.

FEASIBLE MEASURES TO AVOID OR MINIMIZE POTENTIAL ADVERSE IMPACTS

All of the build alternatives will require acquisition of additional right-of-way along the study corridor and associated relocations, as discussed in the *“Community Cohesion (Relocations)”* section above. The FDOT will carry out a right-of-way and relocation program to minimize potential adverse impacts from relocations.

Complete avoidance of the Owaissa Bauer Pineland Preserve Addition No. 1 (a Miami-Dade County EEL protected pineland) was not possible, as discussed in the *“Wildlife and Habitat”* section above. Per coordination with the Miami-Dade County Department of Regulatory and Economic Resources (DRER), Environmental Monitoring and Restoration Division (EMRD), EEL Program representatives advised that they would not provide any further comments on the project until the FDOT’s Draft Environmental Impact Statement is released to agencies and the public. Therefore, coordination will continue with the Miami-Dade County EEL Program representatives and the formulation of a suitable mitigation plan for the proposed impacts to the Owaissa Bauer Pineland Preserve Addition No. 1 is still pending at the time of this document. During the final design phase of the project, in order to approve a proposed easement within the Owaissa Bauer Pineland Preserve Addition No. 1 site, the Florida Department of Environmental Protection requires submittal of the "Upland Easement Application" to the State of Florida Board of Trustees of the Internal Improvement Trust Fund for review to apply for easement interest in





the land. The application requires a resolution from the Miami-Dade County Board of County Commissioners and written approval from the managing agency (Miami-Dade County EEL and Miami-Dade County Parks, Recreation and Open Spaces).

SHORT-TERM IMPACTS VERSUS LONG-TERM BENEFITS

Short-term impacts associated with the project will exist during construction operations. These include inconveniences to motorists, business owners, and neighbors. Temporary air pollution from dust and road emissions, along with noise associated with construction operations cannot be avoided. Every effort will be made to minimize these impacts by utilizing best management practices and adhering to the latest edition of the *FDOT Standard Specifications for Road and Bridge Construction*.

Long-term benefits will result from the proposed project by helping to resolve safety, physical, and functional deficiencies within the corridor plus overall capacity needs. Primarily, the project will address safety deficiencies along this section of the Krome Avenue corridor. Secondly, the project will provide additional capacity to accommodate anticipated future area travel demand and to address other design deficiencies along the roadway. Additionally, the project will support the effectiveness of the corridor as an emergency evacuation route and provide for regional connectivity.





1.0 PURPOSE AND NEED FOR ACTION

1.1 INTRODUCTION

This National Environmental Policy Act (NEPA) study was conducted for the Krome Avenue (South) project to evaluate and comprehensively examine various alternatives for roadway and safety improvements to a ten-mile segment of Krome Avenue (SR 997/SW 177th Avenue) from SW 296th Street (Avocado Drive) to SW 136th Street (Howard Drive) in unincorporated Miami-Dade County, Florida (see *Figure 1-1*). A corridor analysis was conducted first and then alternatives were developed along the recommended corridor. These alternatives included the No-Build Alternative, a Transportation System Management (TSM) Alternative, Action Plan Alternative, and five build alternatives. The primary focus of this study was to identify the location, type, and size of improvements that would address the deficiencies along this portion of the roadway network in Miami-Dade County. Due to the project's potential for substantial controversy (as identified during the public involvement process and Citizen's Advisory Committee meetings), the level of study required to examine project impacts was determined to be an Environmental Impact Statement. The study seeks a solution that most effectively addresses the project needs while minimizing environmental impacts. As discussed in more detail in the following sections, other minor safety projects have been implemented at various intersection locations along the corridor over the past ten years; however, the cumulative effect of those improvements has not completely met the overall need for this project, which is to address safety deficiencies along the entire study segment of the Krome Avenue corridor.



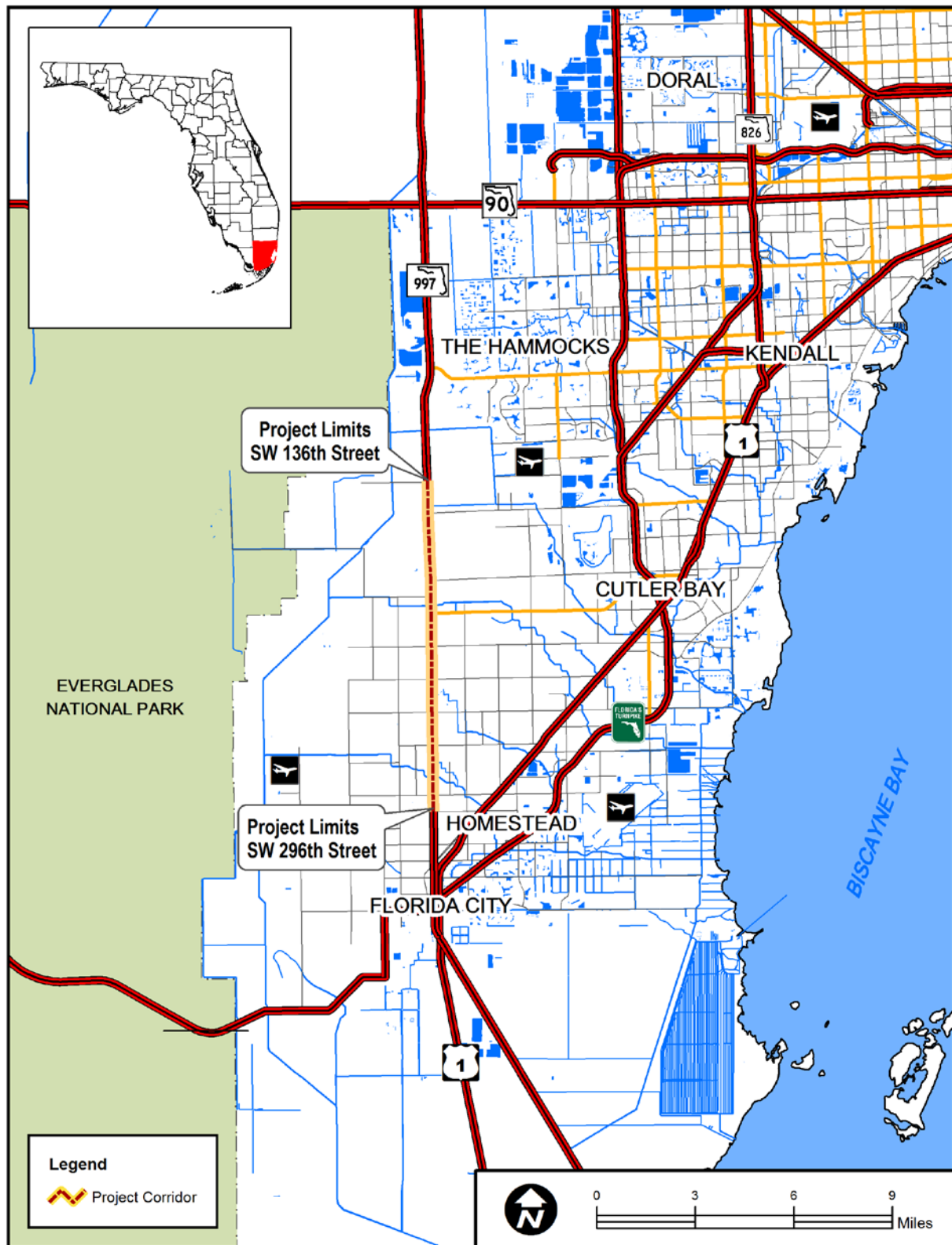


Figure 1-1 – Location Map





1.2 PURPOSE AND NEED FOR ACTION

The need for improvements on this corridor is based on a combination of safety, physical, and functional deficiencies within the corridor plus overall capacity needs. The primary objective of the project is to address safety deficiencies along this section of the Krome Avenue corridor. The secondary objectives of the project are to provide additional capacity to accommodate anticipated future area travel demand and to address other design deficiencies along the roadway. Additional secondary objectives include maintaining the effectiveness of the corridor as an emergency evacuation route and improving regional connectivity.

1.2.1 Background

The Krome Avenue corridor has been the subject of many Florida Department of Transportation (FDOT) studies and several applications to amend the Miami-Dade County's Comprehensive Development Master Plan (CDMP), proposing the widening of the roadway from two to four lanes. In mid-1980's, FDOT District Six began a Project Development and Environment (PD&E) Study for Krome Avenue that was evaluating a four-lane rural typical section. The project was temporarily paused due to public opposition and environmental concerns related to the four-lane proposal.

The widening of Krome Avenue was identified in the FDOT's 1988 Strategic Transportation Plan (October 1987), with construction planned from 1999 to 2008. In April 1988, the Miami-Dade County Planning Department issued the Proposed Traffic Circulation Element of the Draft 2000 and 2010 CDMP Update, which included the widening of Krome Avenue from US 27/SR 25/Okeechobee Road to US 1/SR 5. The Board of County Commissioners adopted the CDMP Update with changes in December 1988, but retained Krome Avenue as a two-lane facility.

In April 1990, the Miami-Dade County Planning Department filed Application No. 32 to amend the CDMP to provide consistency with a pending Metropolitan Planning Organization (MPO) 2010 Long Range Transportation Plan Update. The proposed change was the widening of Krome Avenue for its full length from US 1 to US 27. The Board of County Commissioners again retained Krome Avenue as a two-lane roadway. In April 1993, the Miami-Dade County Planning Advisory Board filed Application No. 7 to amend the CDMP, proposing to revise the "Planned Year 2010 Roadway Network" map of the Traffic Circulation Element to re-designate Krome Avenue, from US 1 to SW 328th Street and between SW 296th Street and US 27, from a Minor Roadway to a Major Roadway in the Land Use Plan. This application was withdrawn by the Planning Advisory Board at its final hearing.

During the 1990s, Krome Avenue was designated as a Florida Intrastate Highway System (FIHS) facility. The 1994 Transportation Improvement Program for Krome Avenue was modified to reflect a two-lane roadway and a PD&E phase study to begin in 1995-96. Rather than begin a PD&E Study, the FDOT, in consultation with the MPO, decided to proceed with a Corridor Action Plan that would evaluate Krome Avenue from a planning perspective with project recommendations. These recommendations would include right-of-way protection/preservation,





ultimate improvements consistent with its FIHS designation, interim operational improvements and extensive public involvement and consensus building.

From 1992 to 1994, the FDOT improved Krome Avenue from S.W. 296th Street/Avocado Drive to SW 8th Street/Tamiami Trail in order to provide interim safety improvements by adding four feet of paved shoulders to each side of the roadway along with associated drainage improvements, milling and resurfacing, and pavement markings.

In May 1994, the FDOT filed Application No. 12 to amend the CDMP, proposing widening of Krome Avenue within the same limits as the above-referenced 1993 CDMP Application No. 7. The Board of County Commissioners denied the transmittal of this application to the Florida Department of Community Affairs (DCA) [today known as the Florida Department of Economic Opportunity (FDEO)], which effectively maintained the two-lane designation in the CDMP. Then, in February 1997, the FDOT initiated the Krome Avenue Action Plan to determine ultimate improvements to the two-lane facility to address safety and mobility.

In October 1999, the Miami-Dade County Department of Planning and Zoning filed Application No. 6 to amend the CDMP Traffic Circulation Sub-element to change the designation of Krome Avenue from US 1 to S.W. 328th Street from two lanes (Minor Roadway) to four lanes (Major Roadway), and from S.W. 328th Street to S.W. 296th Street from four lanes (Major Roadway) to two lanes (Minor Roadway) on the Land Use Plan. In October 2000, the Board of County Commissioners adopted Application No. 6. Adoption of this application maintained consistency with the recommendations of the MPO adopted Krome Avenue Plan.

In 2002, FDOT conducted two separate traffic and safety studies [*SR 997/Krome Avenue Existing Level of Service (LOS) Study* (see [Appendix A](#)) and *SR 997/Krome Avenue Future Conditions Analysis and Mitigation Measures* (see [Appendix B](#))] on Krome Avenue. The purpose of the first study was primarily focused on LOS and safety issues and the results of this study clearly demonstrated the need for LOS and safety improvements along the Krome Avenue corridor. The second study detailed the problems with passing maneuvers on a two-lane undivided Krome Avenue. The principal recommendation of the *SR 997/Krome Avenue Future Conditions Analysis and Mitigation Measures* was the creation of a four-lane section in order to address the safety issues associated with the passing maneuvers.

In 2002, the Miami-Dade County Board of County Commissioners amended the Miami-Dade Comprehensive Development Master Plan and changed the designation of Krome Avenue from a “Minor Roadway” to “Major Roadway” on the 2005 and 2010 Land Use Plan Map and changed the Plan Year 2015 roadway network to reflect Krome Avenue from two to four lanes. That plan amendment was found “in compliance” by the State Department of Community Affairs. That compliance determination was challenged. After litigation, the compliance finding was upheld. This followed recognition by the Miami-Dade County Board of County Commissioners of the safety issues on the existing two lane corridor (see Resolution R-199-02, [Appendix C](#)).

The CDMP has been updated and continues to show Krome Avenue as four lanes for its entire length on the planned year 2025 roadway network map. Krome Avenue continues to be





identified as a state principal arterial on the roadway functional classification map for 2025. Krome Avenue remains designated as a major route on the designated evacuation route – 2015 map in the CDMP.

The Miami-Dade MPO Long Range Transportation Plan (LRTP) has been updated since the Notice of Intent for this project. In the 2035 LRTP Krome Avenue is shown as a 2035 cost-feasible segment improvement and the various Krome Avenue segments are shown as part of the 52 projects that satisfy the criteria for regional projects.

Miami-Dade County has conducted a required periodic review of the CDMP through the Evaluation and Appraisal Report (EAR) process and adopted its 2010 EAR in March 2011. The EAR does not identify any major issues with the designation of Krome Avenue and did not propose any changes to its designation. No changes to the roadway classification of Krome Avenue were proposed in the EAR.

As recommended by the Krome Avenue Action Plan, beginning in 2003 the FDOT began providing additional interim safety improvements by widening a number of intersections along the study corridor to provide right and left turn lanes which promote traffic through-movements and reduce the likelihood of rear-end collisions. Those safety improvement projects were completed by 2007. Also, in 2004, the FDOT initiated this PD&E study, with a commitment to the MPO to fully evaluate both two-lane and four-lane typical section alternatives.

1.2.2 Project Needs Within the Study Area

The following sections discuss the needs specific to the proposed study corridor. In particular, roadway safety, corridor capacity, and a variety of design deficiencies need to be addressed.

1.2.2.1 Safety

It is evident that traffic volume growth and the resulting congestion have contributed to driver frustration and attempts to make risky maneuvers along Krome Avenue. Combined with the fact there is a very high percentage of truck traffic (ranging between 26% - 32% based on average annual daily traffic) along with slow moving farm vehicles, these conditions have contributed to the high rate of crashes and crash severity along the Krome Avenue study corridor.

The FDOT utilizes the ‘Rate-Quality Control’ method to identify hazardous locations along state roadways. The ‘Rate-Quality Control’ method uses the crash rate (Number of Crashes per Million Vehicle-Miles) of a particular location of roadway and applies a statistical test to determine whether the crash rate is significantly abnormal compared to predetermined crash rate for segments of roadways of similar characteristics (Ref.: FDOT TOPIC # 500-000-100-c). The abnormal crash location is identified by a Safety Ratio of greater than 1.0. The hazardous locations, referred to as High Crash Segments or Spots, are compiled annually and utilized to develop and prioritize improvements to reduce the frequency of crashes along state roadways. FDOT crash data is available from the commencement of this study through the year 2010. Within the study area of Krome Avenue are many sections which have appeared in the High





Crash Segment lists for every one of the twelve analysis years (1999 – 2010). A detailed list is presented in [Appendix D](#). The manually calculated Safety Ratios (weighted averages) for the entire study segment of Krome Avenue for the ten year analysis are presented graphically in [Figure 1-2](#).



Figure 1-2 – Safety Ratios (Weighted Averages)

A Safety Ratio higher than 1.0 is an indicator that a particular segment/location of a state roadway had experienced crash rates higher than statewide averages for similar roadways. The calculated Safety Ratio along the entire study segment of Krome Avenue has remained at or above twice the statewide average for the past 12 years. A total of 1,424 crashes were reported along the corridor over the 12-year period. A total of 26 fatalities in 23 fatal crashes were reported during this period with 58% of all crashes resulting in injuries. [Table 1-1](#) presents statistics for the entire study corridor in terms of injuries and fatalities. It should be noted that there were various short-term improvement projects constructed within the study area from 2003-2004 and again during 2007.





**Table 1-1 – Crash Data by Severity –
SR 997/Krome Avenue from SW 296th Street to SW 136th Street**

Year	Number of Crashes	Number of Injury Crashes	Number of Injuries	Number of Fatal Crashes	Number of Fatalities
1999	97	63	120	2	2
2000	94	64	120	3	3
2001	116	74	157	3	4
2002	91	60	106	2	2
2003	106	61	134	2	3
2004	121	67	125	0	0
2005	128	66	112	2	2
2006	128	69	109	1	1
2007	132	66	111	1	1
2008	141	86	169	3	3
2009	136	76	127	3	4
2010	134	69	120	1	1
Total	1424	821	1510	23	26
Average/Year	119	69	126	1.9	2.2

Source: FDOT Crash Analysis Reporting System

Along the approximately ten mile long two-lane roadway there are eight signalized intersections and numerous unsignalized intersections. Three unsignalized intersections (280th, 272th and 136th Street) are considered to be large enough for specific evaluation due to the potential need for future signalization. There have been a variety of short-term safety TSM improvement projects implemented at ten intersections within the study area, between 2003-2004 and again in 2007. The intersection improvements primarily consisted of adding separate turn lanes or modifying the pavement markings to separate turn lanes where required. These TSM intersection improvements were anticipated to reduce crashes at the intersections. A before-and-after analysis of available crash data indicated that while the improvements did increase safety at some of the intersections, in some locations, angle type crashes have actually increased over time.

Crashes that occur in between the intersections, such as head-on and run-off-the-road type crashes, which are typically more severe crashes compared to intersection crashes, would not be reduced by these TSM improvements. A previous Krome Avenue study recognized the need for improvements along the long stretches of roadway between the intersections and recommended adding a median separation as a potential long-term solution to reduce/eliminate head-on and angle type crashes that have increased the crash severity within the study area. **Table 1-2** presents crash statistics for the entire study corridor by crash type. Proposed improvements within the Krome Avenue study area need to consider alternatives that will improve safety along the corridor.





**Table 1-2 – Crash Data by Type of Crash –
SR 997/Krome Avenue from SW 296th Street to SW 136th Street**

Type of Crash	Total Percentage	Number of Crashes
Rear End	36%	514
Angle	24%	344
Left Turn	10%	149
Sideswipe	8%	108
Head-on	2%	34
All Other	19%	275

* 1999-2010 Total Crashes = 1,424

Source: FDOT Crash Analysis Reporting System

1.2.2.2 Capacity

The Krome Avenue corridor will require additional capacity improvements to alleviate congestion and to maintain the desired LOS D, where feasible, in the future. Proposed improvements need to address the enhancement of both intersection and roadway capacity in order to accommodate traffic demands.

Traffic projections indicate an annual growth range between 3.11 and 4.74 percent per year in traffic during the study time-frame (i.e. 2004-2040). The programmed improvements for Krome Avenue will not provide the required capacity to adequately accommodate future projected volumes. Several signalized intersections and links are anticipated to operate at an unacceptable LOS based upon future volumes and programmed improvements.

If additional physical improvements (beyond the programmed improvements already identified in the FDOT's Work Program) are not made within the corridor, the overall arterial LOS for Krome Avenue will decrease from LOS C to LOS E for the northbound direction during the AM peak period. Similarly, the southbound direction overall arterial LOS will decrease during the PM peak period from LOS C to LOS E. A latent demand of approximately 18,700 vehicle-trips per day will be absorbed by other roadways in the area in the absence of additional capacity created on Krome Avenue by a four-lane alternative.

Of the 11 intersections analyzed under the No-Build conditions, three intersections operate at LOS D or worse during one or both, AM and PM, peak periods for the Existing Year 2004 conditions. Six intersections are projected to operate at LOS D or worse during one or both peak periods for Opening Year 2020. By Mid-Design Year 2030, all intersections will operate at LOS D or worse during one or both peak periods. By Design Year 2040, all intersections are projected to operate at LOS D or worse during both peak periods. Proposed improvements within the Krome Avenue study area need to consider alternatives that will improve capacity along the corridor.

For additional information on the traffic capacity analyses conducted for this project, refer to Appendix A of the *Preliminary Engineering Report*.





1.2.2.3 Design Deficiencies

In addition to the need for improvement based on safety and capacity, Krome Avenue exhibits design deficiencies that need to be addressed. These issues include, but are not limited to: roadside clear zone, drainage, and access management.

Roadside Clear Zone

The roadside clear zone provides a ‘forgiving’ environment to the motorists. When a vehicle swerves off the road there should be an adequate clear recovery area for the driver to regain control of the vehicle and safely come to a full-stop without hitting a fixed object, another vehicle, a pedestrian or a bicyclist. Lack of clear recovery area on the left side is particularly important along Krome Avenue, because it often results in a centerline crossover head-on collision, which is one of the most severe types of crash. Lack of adequate clear recovery area on the right side is one of the primary and direct contributors to fixed object collisions, which also often result in higher severity crashes.

There were 34 head-on crashes during the 12 year period, 17 of which occurred in the section between SW 184th Street and SW 136th Street. There were 88 crashes that involved vehicles hitting a roadside object, including utility poles, sign posts and ran into ditch/culvert. Most of these crashes (48) occurred in the section between SW 296th Street and SW 232nd Street. Capacity restriction is a secondary contributor to rear-end, angle, and left turn crashes. These three types of crashes accounted for 1,007 of the 1,424 crashes (70%) along the Krome Avenue corridor during the past 12 years. Proposed improvements within the Krome Avenue study area need to consider alternatives that address the factors that improve the clear recovery areas along the corridor, to help reduce head-on and roadside object crashes.

Drainage

The existing stormwater management system along the Krome Avenue corridor is inadequate, consisting of direct offsite discharge via overland flow from the embankment. A few intermittent roadside dirt swales/depressional areas exist; however, no formal water quality facilities occur along the corridor. There are also a few isolated systems constructed by off-site developments which are typically found at the larger intersections along the study corridor. The existing soil infiltration rates range from good to excellent allowing these systems to retain the contributing runoff onsite without any overflow. However, since stormwater treatment or peak attenuation is not provided throughout the corridor, Miami-Dade County and South Florida Water Management District (SFWMD) water quality/quantity treatment standards are not being met. Proposed improvements within the Krome Avenue corridor need to address water quality and water quantity for pre-treatment of runoff, thereby improving overall regional water quality.





Access Management

Krome Avenue is a two-lane undivided roadway that carries an access designation of Class 2 within the study limits. In some sections along the corridor the facility is characterized by frequent and closely spaced driveways. Left-turns are unrestricted resulting in random interruptions to through traffic movement and a substantial number of potential conflict points along Krome Avenue.

Krome Avenue is part of the State Highway System (SHS) and Strategic Intermodal System (SIS); therefore, it should have as strict adherence to the Access Management Standards as practical. The lack of median separation limits the opportunities to implement access management principles that will meet the access management requirements. Furthermore, the lack of access control contributes to side friction which reduces the roadway capacity and contributes to potential safety problems. Traffic demand is projected to increase along the corridor, creating additional issues related to existing capacity and safety concerns. A preliminary access management evaluation of existing conditions is presented in [Section 4.1.10](#) of the *Preliminary Engineering Report*, which includes a discussion of the coordination with Miami-Dade County and the development of a *Binding Access Control Plan* for the entire Krome Avenue corridor (from SR 5/US/Dixie Highway to SR 25/US 27/Okeechobee Road). The FDOT submitted the *Binding Access Control Plan* to Miami-Dade County in September 2012. Proposed improvements within the Krome Avenue study area need to consider alternatives that will improve access management along the corridor.

1.2.3 Area Wide Needs

Area wide needs are defined by, and related to, those needs addressed in the documents associated with local government comprehensive plans and/or the Cost Feasible Plan from the local MPO. The following sections discuss these regionally-based needs.

1.2.3.1 Evacuation Routes and Emergency Services

Krome Avenue provides regional access to major expressways within northwest Miami-Dade County. Krome Avenue is one of only three north-south arterials within the study area which provides regional access to the Florida Turnpike (SR 821), the Palmetto Expressway (SR 826), US 41 (SR 90/Tamiami Trail) and US 27 (SR 25/Okeechobee Road). Accordingly, Krome Avenue provides an important emergency evacuation route, not only for hurricanes, but also for “all hazards,” such as an incident at the Turkey Point Nuclear Power Plant. In particular, the Miami-Dade County Comprehensive Emergency Management Plan designates Krome Avenue as a primary north-south evacuation route for the Florida Keys and southern Miami-Dade County. In addition, the Miami-Dade County CDMP, in the Transportation Element, Traffic Circulation Sub-Element, Figure 7, Designated Evacuation Routes 2025, designates Krome Avenue between US 27 and US 1 as a Major Route. The current effectiveness of Krome Avenue as an evacuation route is diminished by the fact that some of its intersections do not meet the desirable LOS. In addition, under the No-Build scenario, by the Design Year 2040, all intersections are projected to operate at LOS D or worse during both peak periods. Without





improvements, as traffic and population continues to grow, Krome Avenue will become even less effective as an evacuation route in accommodating the peak surge of surrounding area traffic resulting from residents trying to access the various Miami-Dade County expressways. Proposed capacity improvements would better accommodate peak surges that may result during emergency situations by providing a second northbound lane which could accommodate evacuating vehicles from Monroe and southern Miami-Dade Counties during an emergency event.

1.2.3.2 Consistency with Federal, State, or Local Government Authority

The Krome Avenue project is consistent with the Miami-Dade County CDMP and relevant regional, state, and local transportation plans. The CDMP provides a detailed discussion which demonstrates the consistency of the proposed project with all relevant aspects of the CDMP including safety, capacity, system linkage, emergency evacuation, access management, and bicycle/pedestrian planning.

The CDMP specifically provides for the widening of Krome Avenue between US 27 and SW 296th Street. In the Land Use Element on the Land Use Plan map, Krome Avenue is designated as a Major Roadway (3 or more lanes). In the Transportation Element, Traffic Circulation Sub-Element, Figure 1, “Planned Year 2025 Roadway Network,” Krome Avenue is designated as a four-lane road.

Miami-Dade County completed its review of the CDMP in the 2010 EAR (adopted March 2011). The EAR identified no issues with the designation of Krome Avenue and proposed no changes to its roadway classification.

The project falls within the service area of the Miami-Dade County MPO. From a regional perspective, the Miami-Dade MPO completed and approved the 2035 LRTP in October 29, 2009. This plan was developed to guide transportation investments in the metropolitan area through year 2035. The segment of Krome Avenue within the study limits was the subject of an LRTP amendment, MPO Resolution #25-13, approved July 18, 2013 (see [Appendix E](#)). The project is listed in the LRTP as a Priority I (for design), Priority II (for right of way) and Priority III (for construction). Priority I corresponds to projects planned to funded between 2010 and 2014; Priority II corresponds to projects planned to be funded between 2015 and 2020; and Priority III corresponds to projects planned to be funded between 2021 and 2025. The FDOT’s District Six Work Program is a major component of the Miami-Dade MPO’s Transportation Improvement Program (TIP). The Work Program, which is updated annually, is a list of transportation activities and improvements that the FDOT is to undertake within a projected five-year period. The projects must be consistent with the goals and objectives found in the Florida Transportation Plan. The Five-Year Work Program for fiscal years 2013/2014 through 2017/2018 was adopted in July 1st, 2013. The Krome South PD&E is identified in the adopted Work Program (249614-4) with limited funds allocated for the PD&E phase in fiscal years 2013/14 and 2014/2015. Also, three design projects (Financial Management Numbers: 427369-1, 427369-2 and 427369-3) are identified in the adopted Work Program within the project limits with funds allocated for preliminary engineering (fiscal years 2013/2014, 2014/2015, and





2015/2016), and right-of-way (fiscal years 2015/2016, 2016/2017, and 2017/2018). The Miami-Dade MPO approved the FY 2014-2018 TIP on May 23, 2013. The three design projects are included in the current TIP with funds allocated for preliminary engineering (fiscal years 2013/2014 and 2014/2015), right-of-way (fiscal years 2015/2016, 2016/2017, and 2017/2018), and construction (beyond 2018). Therefore, the Krome Avenue project is consistent with the Year 2035 Miami-Dade LRTP, as amended.

From a local perspective, the *Homestead Traffic and Mobility Study* encompasses the greater Homestead area, including Krome Avenue. The transportation study, developed by the City of Homestead, includes interconnecting roadways to unincorporated Miami-Dade County and Florida City; areas to be developed; maintenance of LOS; and traffic patterns through the year 2016. In the study, Krome Avenue is recognized as fulfilling a vital transport role, providing the main corridor in western Miami-Dade County for north-south flow of traffic serving both local and regional trips, through Homestead and to and from neighboring areas. Focusing on both motorized and non-motorized transportation needs in that community, the study recommended the widening of Krome Avenue from two to four lanes, with median and turn lanes, to improve mobility and accessibility.

In addition, the *City of Homestead Downtown Area Transportation Plan March 2005 Update* anticipated access management, safety, trail, and bicycle improvements along Krome Avenue between US 1 and US 27. Other Krome Avenue proposed improvements noted in the study include widening, intersection, median, hurricane evacuation, and drainage, as well as the consideration of a truck by-pass route.

The People's Transportation Plan, approved by Miami-Dade County, paved the way for a dedicated funding source exclusively for the improvement of transportation. The People's Transportation Plan Major Highway & Road Improvements for the years 2003 through 2013 called for accelerated safety enhancements and lane improvements for Krome Avenue.

A thorough review of state and local governmental transportation plans was conducted, focusing on the Krome Avenue study corridor area, including the CDMP, the Miami-Dade County LRTP, the Florida State Transportation Improvement Program (STIP), the Miami-Dade County TIP, and the People's Transportation Plan. To minimize impacts and improve constructability, the 10-mile project was split into three design segments. As summarized previously, all three segments are currently in Priority I for design, Priority II for right of way, and Priority III for construction in the LRTP. As funding becomes available, it is possible that more than one segment could be in construction at any given time. Coordination during construction and maintenance of traffic at the beginning and end of each project segment will be essential to facilitate safety of the motoring public. This Krome Avenue project is presented in three segments in the LRTP, STIP, and TIP. **Table 1-3** summarizes the current funding and scheduling for Krome Avenue.





Table 1-3 – Project Planning Consistency

Plan	SW 296 th Street to SW 136 th Street	SW 296 th Street to SW 232 nd Street	SW 232 nd Street to SW 184 th Street	SW 184 th Street to SW 136 th Street
2035 Miami-Dade County Long Range Transportation Plan, as amended July 18, 2013				
PD&E	2010-2014	N/A	N/A	N/A
Final Design	N/A	2013-2015 \$280,000	2013-2015 \$350,000	2014-2015 \$280,000
Right-of-Way	N/A	2016-2017 \$17,055,000	2015-2017 \$28,198,000	2016-2017 \$5,191,000
Construction	N/A	>2017 \$23,472,000	>2017 \$642,000	>2017 \$4,524,000
Florida State Transportation Improvement Program (August 15, 2013)				
PD&E	2013-2015 \$255,908	N/A	N/A	N/A
Final Design	N/A	2013-2016 \$504,470	2013-2015 \$521,896	2013-2015 \$1,965,840
Right-of-Way	N/A	>2016	2016 \$16,637,628	2016 \$7,866,598
Construction	N/A	>2016	>2016	>2016
Miami-Dade County Transportation Improvement Program (May 23, 2013)				
PD&E	2013-2015 \$60,000	N/A	N/A	N/A
Final Design	N/A	2013-2016 \$260,000	2013-2015 \$275,000	2013-2015 \$2,187,000
Right-of-Way	N/A	2016 to >2018 \$43,383,000	2015-2017 \$14,438,000	2015-2017 \$12,267,000
Construction	N/A	>2018 \$36,878,000	>2018 \$24,071,000	>2018 \$24,071,000

N/A = The full ten-mile length of the project (SR 997/Krome Avenue from SW 296th Street to SW 136th Street) is included in the LRTP, STIP, and TIP only for the PD&E phase.

In conclusion, based on the above, this Krome Avenue project is consistent with state, regional, and local transportation plans. A copy of the Planning Consistency Form completed for this project is provided in [Appendix E](#).

1.2.4 Social Demand or Economic Developments

A review of the South Florida Regional Planning Council's map of current and proposed DRIs indicates that four DRIs have been proposed in or near the study area. These DRIs include the Kendall Town Center DRI east of Krome Avenue, Parkland Planned Community DRI just east of Krome Avenue, the Providence DRI just north of the study area, and the Florida City Commons DRI located southeast of the study area. The Kendall Town Center DRI is currently under development with several facilities already completed. The only DRI under review by the FDEO and Miami-Dade County is the Parkland DRI. In order for the Parkland DRI to be approved, the Urban Development Boundary (UDB) line would have to be moved to encompass the proposed development. The Providence and Florida City Commons DRI submittal packages have been withdrawn by the applicants because Miami-Dade County, to date, has not authorized or approved any reconfiguration of the UDB line to encompass these developments. Therefore,





there are no current designations for urban development under the approved CDMP which allow for these DRIs to be approved.

Miami-Dade County has long been the largest and one of the fastest growing counties in Florida. According to the 2010 US Census, Miami-Dade County's population was 2,496,435 which was a 10.8% increase over the 2000 population of 2,253,779. Per the EAR, projected population for 2030 is 3,178,164, which represents a 27% increase over the 2010 population. The population growth in Miami-Dade County can be attributed to tourism-related activities, access to international markets, a second home market and the overall economic growth of southeast Florida. Proposed improvements to Krome Avenue will aid in the overall ability of the area transportation network to accommodate this population growth. The population growth and distribution is detailed in the 2010 EAR. Residential land supply and demand is projected as a function of existing CDMP land use and zoning regulations, reduced slightly to account for build out limitations.

In addition to population growth, the socioeconomic data from each of the Traffic Analysis Zones within one-mile of the corridor as it compares to similar statistics for Miami-Dade County indicates percentage increases up to 61.34% by the year 2030. Socioeconomic characteristics for Miami-Dade County and the study area indicate a modest growth between 2010 and 2030 in population and school enrollment. Between the years 2000 and 2010, there is small drop in the labor force which is estimated to recover and grow by the year 2030. Proposed improvements within the Krome Avenue study area need to consider alternatives that will be consistent with the anticipated social and economic demands of Miami-Dade County in the future along the corridor. Socioeconomic conditions are also discussed in [Section 3.1](#).

1.2.5 Modal Interrelationships

The existing typical section for Krome Avenue does not provide designated pedestrian or bicycle facilities for the length of the project area. The proposed action will include provisions for pedestrian and bicycle access. Miami-Dade Transit currently does not provide a route along Krome Avenue for their MetroBus system and there are no future plans for a route on Krome Avenue. Two unimproved SFWMD canal maintenance access roads bisect Krome Avenue within the study limits. One of the maintenance access roads runs parallel to the SFWMD C-102/Princeton Canal, which crosses Krome Avenue at approximately SW 196th Street, while the other maintenance access road runs parallel to the SFWMD C-103/Mowry Canal, which crosses Krome Avenue just north of SW 280th Street. These roads are currently mowed/maintained by the SFWMD for maintenance access to the adjacent canals. The Miami-Dade County Parks, Recreation and Open Spaces (MDPROS) Master Plan Vision Map (dated November 11, 2009) shows both of these maintenance access roads as potential future "greenways" in the MDPROS Master Plan. However, the SFWMD, the owner of these canal maintenance access roads, has no plans at this time for development of these canal maintenance access roads for trail use. Proposed improvements to the Krome Avenue corridor need to consider providing continuous pedestrian and bicycle features, which will allow for interconnectivity with any trails (existing or future) in the area within the study limits.





2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

2.1 PROJECT DESCRIPTION

The project is located in Miami-Dade County and involves roadway and safety improvements to Krome Avenue from SW 296th Street/Avocado Drive) to SW 136th Street/Howard Drive). Krome Avenue is a major north-south rural/urban principal arterial that extends approximately 36 miles from SR 5/US 1 to SR 25/US 27 /Okeechobee Road in unincorporated Miami-Dade County. Under the PD&E study for this ten mile long project, various alternatives were developed and analyzed, including a No-Build alternative, a TSM alternative, and five build alternatives including considerations of two-lane, three-lane, four-lane and five-lane typical sections.

The Krome Avenue corridor has been the subject of extensive study and discussion for the past two decades. The section of Krome Avenue from the intersection of SW 136th Street to the intersection of Okeechobee Road in Miami-Dade County was the subject of another PD&E Study, completed November 2006, that extends approximately 23 miles.

Krome Avenue provides regional connectivity from as far south as the Florida Keys to Broward County and points north. Further, it is one of only three evacuation routes serving the Florida Keys and southern Miami-Dade County. Other concerns include safety issues, capacity, design deficiencies including clear zone, drainage, and access management.

The proposed project is consistent with both regional and local transportation plans. From a regional perspective, it is consistent with the 2035 Miami-Dade LRTP adopted October 2009, the Transportation Improvement Program, and Florida Transportation Plan. From a local viewpoint, the *Homestead Traffic and Mobility Study* include the development of interconnecting roadways to unincorporated Miami-Dade County and Florida City.

The existing daily traffic is approximately 15,000 vehicles per day (vpd) with a projected design year traffic ranging between 21,000 to 58,000 vpd, depending on the proposed alternative (two-lane, two-lane modified or four-lane). Traffic is a mixture of local, short distance trips and through traffic (longer trips). Future projections indicate substantial traffic congestion, as the capacity of the existing two-lane section will be inadequate.

2.1.1 Existing Conditions

The section of Krome Avenue from SW 296th Street (MP 3.827) to SW 272nd Street/Epmore Drive (MP 5.342) is classified as an Urban Principal Arterial and from SW 272nd Street to SW 136th Street (MP 13.895) is classified as a Rural Principal Arterial. The existing speed limit is posted at 45 miles per hour (MPH) along the study corridor. The access management classification within the study limits is Class 2 Restrictive. Also, the Krome Avenue corridor is part of the SHS and the SIS.

The existing typical section of Krome Avenue from SW 296th Street to SW 136th Street varies slightly, consisting primarily of two undivided 12-foot-wide travel lanes (less than 12 feet at





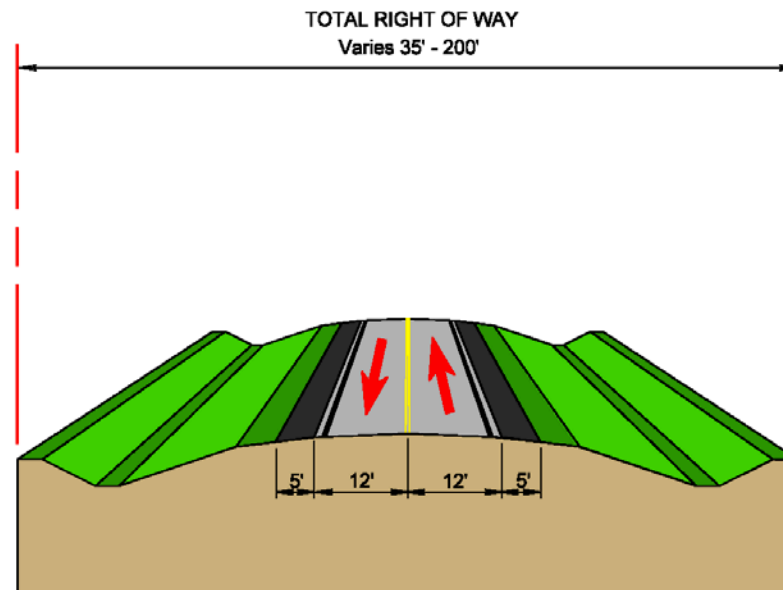
some locations), with five-foot wide paved shoulders (less than five feet at some locations) and soil/grass swales. The existing right-of-way varies from 35 feet to 200 feet (see *Figure 2-1*).

No designated pedestrian facilities currently exist along Krome Avenue or any of the adjacent side streets within the corridor study. No designated bicycle facilities exist within the study limits. There are no crosswalks and/or pedestrian pushbuttons provided at the signalized intersections within the study limits.





Existing Conditions



N.T.S.

Figure 2-1 – Existing Two-Lane Rural Typical Roadway Section





2.2 ALTERNATE CORRIDORS EVALUATED

Alternate corridors were evaluated as part of this study in the *Corridor Analysis Report*, a companion document to this PD&E study. The report identified and evaluated corridor alternates in the area surrounding the Krome Avenue facility to determine reasonable corridor alternative considerations. Factors relating to the design and location of the facility as well as information and issues relevant to the project decision were considered including socioeconomic, environmental, and engineering issues as well as the following alignment controls which may influence corridor location:

- Available right-of-way through which an improvement providing acceptable service could be routed.
- Cultural features including public and private development.
- Natural features which could be impacted by the project.
- Preservation of the rural character of lands outside the designated urban growth area.
- Logical termini giving consideration to directness, length, and service.

Each corridor alternate was analyzed and evaluated to a point of rejection or selection as a viable corridor. The impacts for each alternate corridor were identified and compared to other corridor alternates through the use of an evaluation matrix, which is presented in [Table 2-1](#), Corridor Evaluation Matrix (at the end of this section).

Three alternate corridor locations were considered in addition to the existing Krome Avenue corridor within the PD&E study limits as part of this analysis. The alternates consisted of parallel corridors to the Krome Avenue corridor. The analysis examined each of the corridors over the same approximate ten-mile project length. The analysis for all corridors begins at SW 296th Street/Avocado Drive and ends at SW 136th Street/Howard Drive. The following are the alternate corridors that were selected for evaluation (see [Figure 2-2a](#) through [Figure 2-2c](#)):

1. SW 187th Avenue/Redland Road
2. SW 182nd Avenue/Roberts Road
3. SW 177th Avenue/Krome Avenue (existing)
4. SW 167th Avenue/Tennessee Road

There are no anticipated changes in land use designations for any of the study corridors at the time of this study. The CDMP updated land use plan (2015 and 2025) show no changes in land use in the project area from the earlier (2005 and 2015) land use plan. The 2010 EAR takes the same approach. The distinctive elements of each of these alternates are discussed in more detail in [Section 2.2.1](#) through [Section 2.2.4](#).





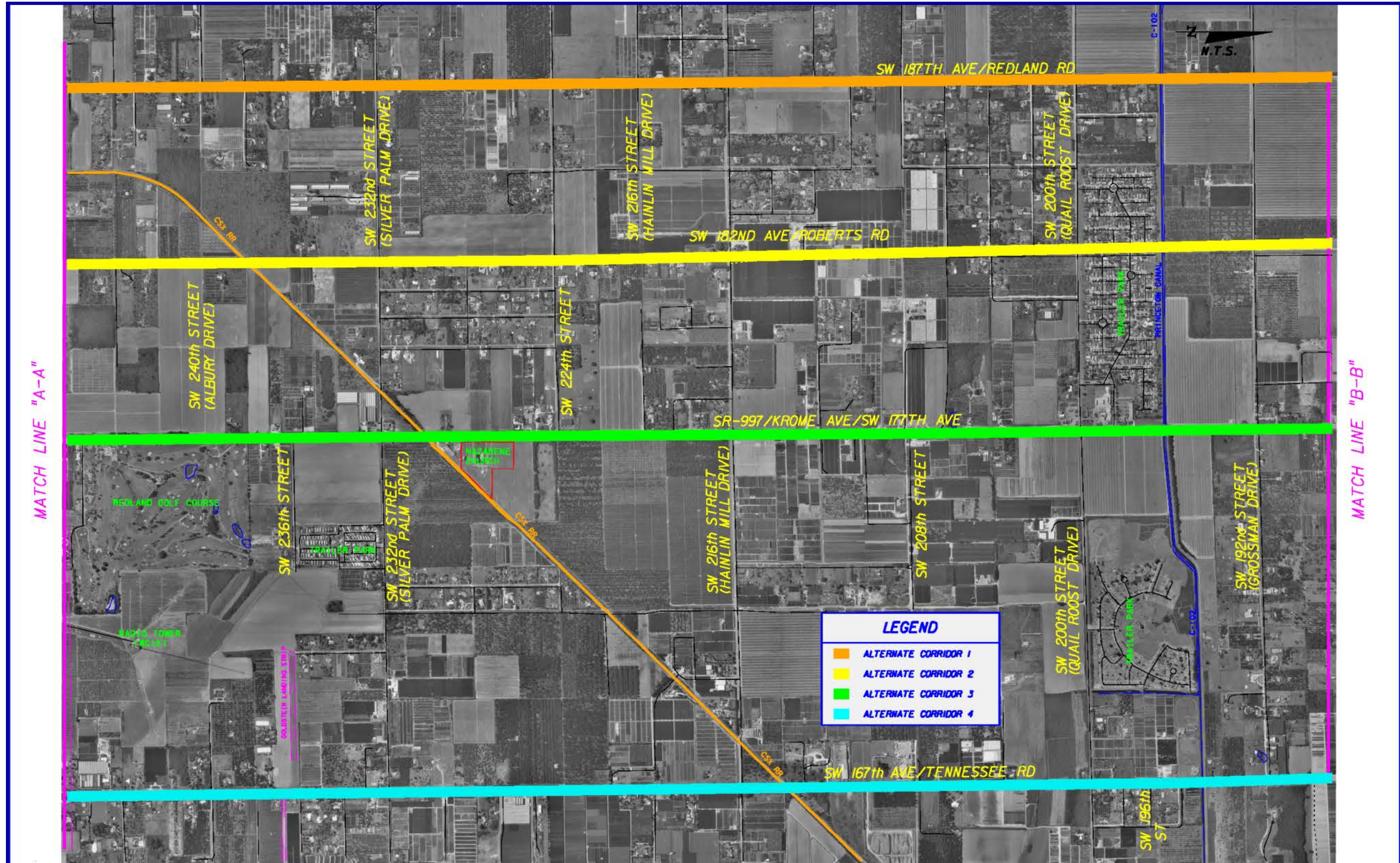


Figure 2-2b – Alternate Corridors



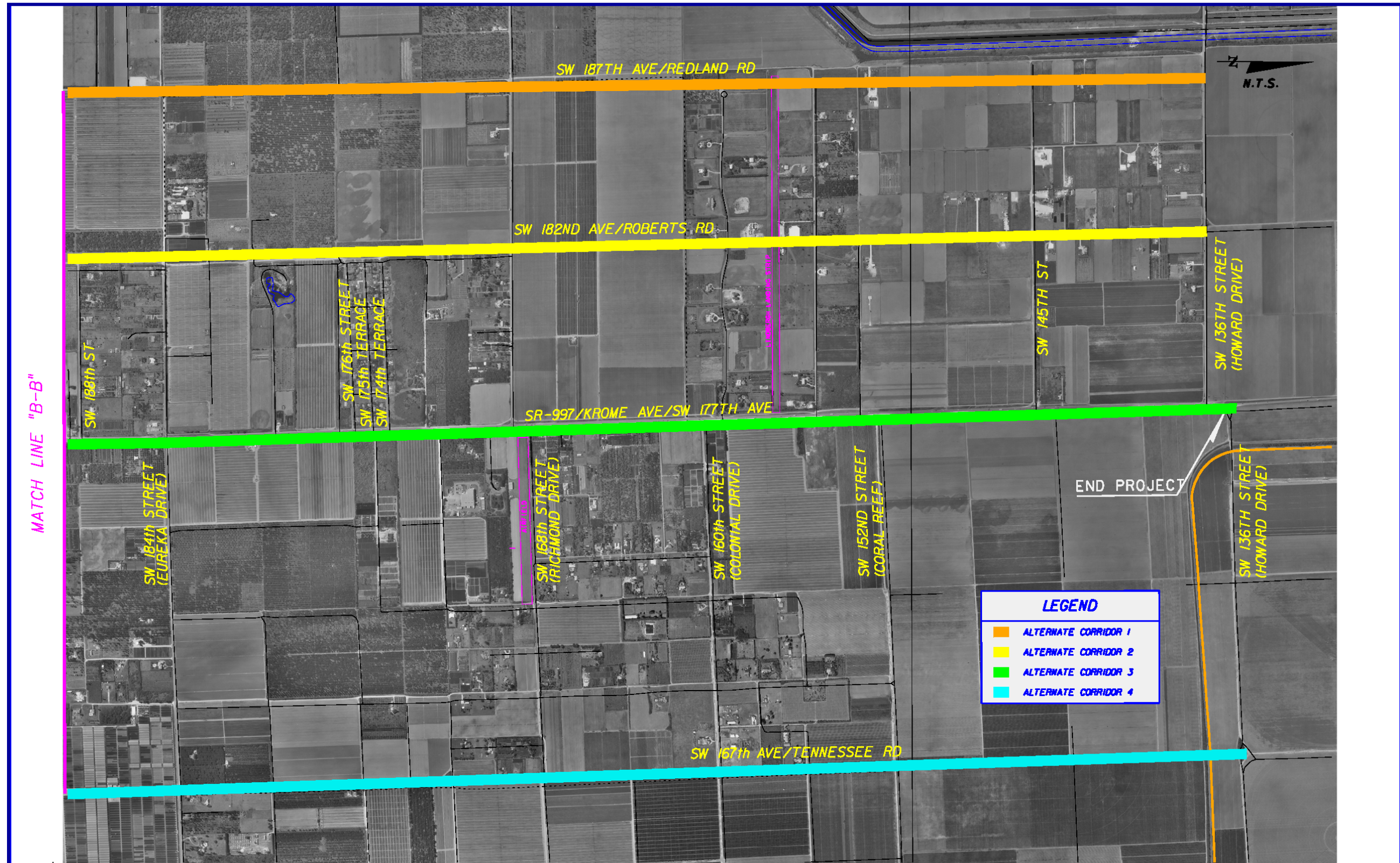


Figure 2-2c – Alternate Corridors





2.2.1 Alternate Corridor 1: SW 187th Avenue/Redland Road

The existing roadway along this corridor alternate consists of a two-lane undivided typical section with no paved shoulders. The lanes vary from ten feet to 12 feet in width with sodded swales on both sides. The right-of-way varies from 70 feet to 80 feet in width. The posted speed limit varies from 30 MPH to 40 MPH. **Figure 2-3** illustrates the typical section of the SW 187th Avenue/Redland Road corridor.

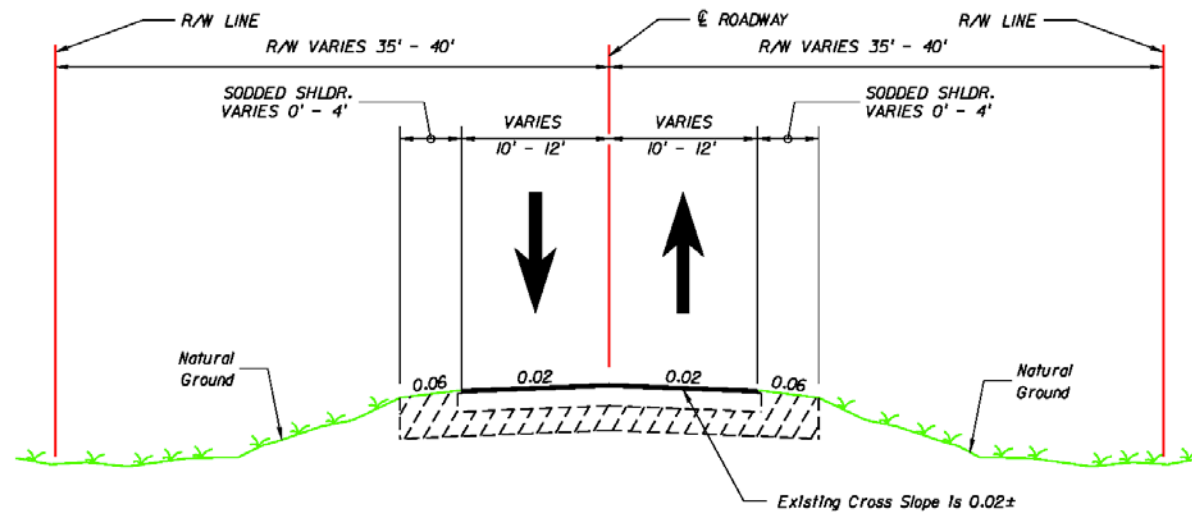
The typical land use through this corridor consists of agricultural land with some residential and institutional uses. The roadway crosses both the SFWMD C-103/Mowry Canal and the C-102/Princeton Canal. The corridor also crosses the following major intersections: 1) SW 296th Street/Avocado Drive, 2) SW 288th Street/Biscayne Drive, 3) SW 280th Street/Waldin Drive, 4) SW 272nd Street/Epmore Drive, 5) SW 264th Street/Bauer Drive, 6) SW 256th Street/Plummer Drive, 7) SW 248th Street/Coconut Palm Drive, 8) SW 232nd Street/Silver Palm Drive, 9) SW 216th Street/Hainlin Mill Drive, and 10) SW 200th Street/Quail Roost Drive.

The University of Florida Miami-Dade County Cooperative Extension Service Agricultural Center/Institute of Food and Agricultural Sciences is located at the Miami-Dade County John D. Campbell Agricultural Center (18710 SW 288th Street) at the intersection of SW 187th Avenue and SW 288th Street. The Faith Church of the Redlands (28945 SW 187th Avenue) is located across from the Agricultural Center.

The Redland Community United Methodist Church (18700 SW 248th Street) is located at the intersection of SW 187th Avenue and SW 248th Street. The Miami-Dade County Preston B. Bird & Mary Heinlein Fruit & Spice Park (24801 SW 187th Avenue) is located across from the church.

Two historical sites exist along this corridor. The Pioneer Guild Hall, founded by the Women of Redland in 1907, is the last remaining structure from that time period found in this area and is located at the intersection of SW 187th Avenue and SW 272nd Street/Epmore Drive. The Walton House (12801 SW 187th Avenue) was built by W.K. Walton circa 1919. This wood frame, stucco covered residence is designed in the style of an English cottage and is not typical of other houses built during the same period in rural south Dade.





EXISTING TYPICAL SECTION
ALTERNATE CORRIDOR 1
SW 187th AVENUE/REDLAND ROAD

N.T.S.

Figure 2-3 – Alternate Corridor 1 Typical Section





2.2.2 Alternate Corridor 2: SW 182nd Avenue/Roberts Road

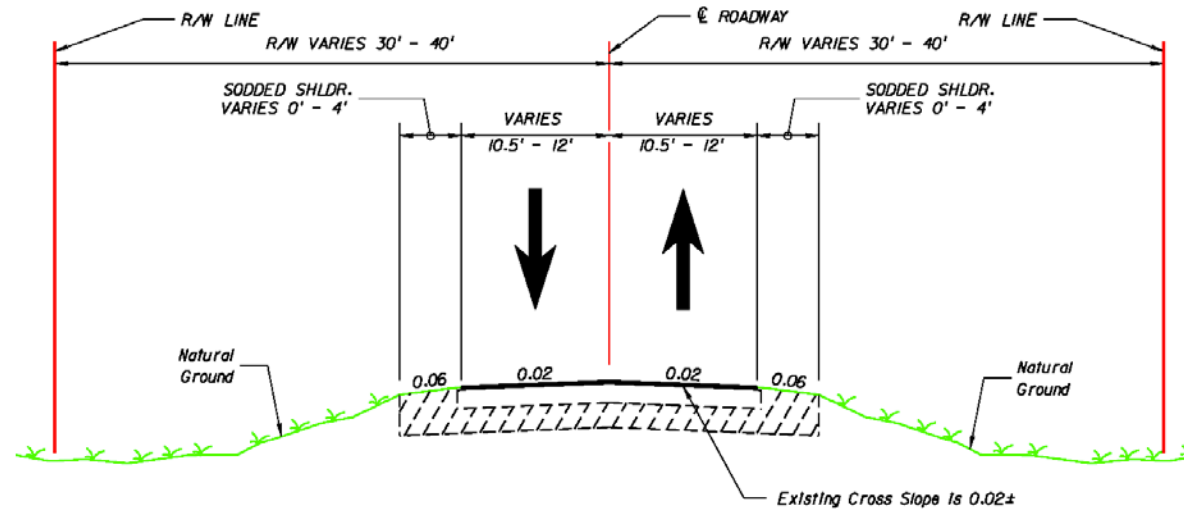
The existing roadway along this corridor alternate consists of a two-lane undivided typical section with no paved shoulders. The lanes vary from 10.5 feet to 12 feet in width with sodded swales on both sides. The right-of-way varies from 60 feet to 80 feet in width. The posted speed limit varies from 30 MPH to 40 MPH. *Figure 2-4* illustrates the typical section of the SW 182nd Avenue/Roberts Road corridor.

The typical land use through this corridor consists of agricultural land with some residential uses. The roadway crosses the C-103/Mowry Canal, the CSX railroad line, and the following major intersections: 1) SW 296th Street/Avocado Drive, 2) SW 288th Street/Biscayne Drive, 3) SW 280th Street/Waldin Drive, 4) SW 272nd Street/Epmore Drive, 5) SW 264th Street/Bauer Drive, 6) SW 248th Street/Coconut Palm Drive, and 7) SW 232nd Street/Silver Palm Drive.

North of SW 224th Street the existing typical section changes to an unimproved two-lane dirt road. The roadway crosses the following major intersections: 8) SW 216th Street/Hainlin Mill Drive, and 9) SW 200th Street/Quail Roost Drive.

The roadway continues north as a minor (pseudo-private) roadway, and is known as Ferry Avenue (running down the middle of a large well established residential and trailer park area) for the segment north of SW 200th Street and south of the C-102/Princeton Canal (approximately SW 196th Street). The road stops at this point as there is no existing bridge crossing at the C-102/Princeton Canal. SW 182nd Avenue picks up again on the north side of the C-102/Princeton Canal (approximately SW 196th Street) and from that point the corridor is comprised of discontinuous intermittent paved, dirt or gravel roadway segments interspersed among agricultural or unimproved parcels of land, until it reaches the northern project terminus at SW 136th Street/Howard Drive.





EXISTING TYPICAL SECTION
ALTERNATE CORRIDOR 2
SW 182nd AVENUE/ROBERTS ROAD

N.T.S.

Figure 2-4 – Alternate Corridor 2 Typical Section





2.2.3 Alternate Corridor 3: SW 177th Avenue/Krome Avenue

The existing roadway along this corridor alternate varies slightly consisting primarily of two undivided lanes, varying in width from 10.5 feet to 12 feet; paved shoulders ranging from zero feet to five feet; and roadside swales. The right-of-way varies from 35 feet to 200 feet in width. The existing speed limit is posted at 45 MPH along the Krome Avenue corridor. *Figure 2-5* illustrates the typical section for this corridor. The existing Krome Avenue corridor traverses a farming and residential community. The agricultural land uses include numerous agricultural fields and herbaceous, ornamental, and fruit tree nurseries. The agricultural fields include seasonal "self-pick" fields with fruit/vegetable stands. There are many nurseries found scattered along much of the southern stretch of Krome Avenue; most are open to the public with direct access onto Krome Avenue.

From SW 296th Street to SW 288th Street, residential estate densities of one to 2.5 dwelling units per acre occur on both sides of Krome Avenue. From SW 288th Street to SW 272nd Street, residential estates occur only on the east side of Krome Avenue, while agricultural land use occurs on the west side. North of SW 272nd Street, agriculture dominates land use along Krome Avenue, with the exception of some intersections that are designated business and office land uses. Office and business land uses along Krome Avenue are found at the intersections of SW 272nd Street, SW 248th Street, SW 232nd Street, and SW 200th Street. There are at least eight gas stations along the corridor. Along the southern portion of the Krome Avenue South corridor, between SW 288th Street and SW 184th Street, three establishments were found to have active horse hitching posts, which provide evidence of the historically preserved rural character of Krome Avenue. Other land uses include an airplane glider facility located at the intersection of SW 168th Street and Krome Avenue, three churches, and one religious school found along the corridor.

There is one ecologically important parcel of land adjacent to the Krome Avenue corridor, the 9.39-acre Owaissa Bauer Pineland Preserve Addition No. 1 property, located south of SW 264th Street along the east side of Krome Avenue. This property is owned by the state of Florida (acquired with Conservation and Recreation Lands Program funds) and is managed by the Miami-Dade County Department of Regulatory and Economic Resources (DRER), Environmental Monitoring and Restoration Division (EMRD), Environmentally Endangered Lands (EEL) Program. Important habitat consisting of pine rockland exists on this parcel along with several protected plant species. The Federal Highway Administration (FHWA) has determined that Section 4(f) does not apply to the Owaissa Bauer Pineland Preserve Addition No. 1.

Two unimproved SFWMD canal maintenance access roads bisect Krome Avenue within the study limits. One of the maintenance access roads runs parallel to the SFWMD C-102/Princeton Canal, which crosses Krome Avenue at approximately SW 196th Street, while the other maintenance access road runs parallel to the SFWMD C-103/Mowry Canal, which crosses Krome Avenue just north of SW 280th Street. These roads are currently mowed/maintained by the SFWMD for maintenance access to the adjacent canals. The MDPROS Master Plan Vision Map (dated November 11, 2009) shows both of these maintenance access roads as potential

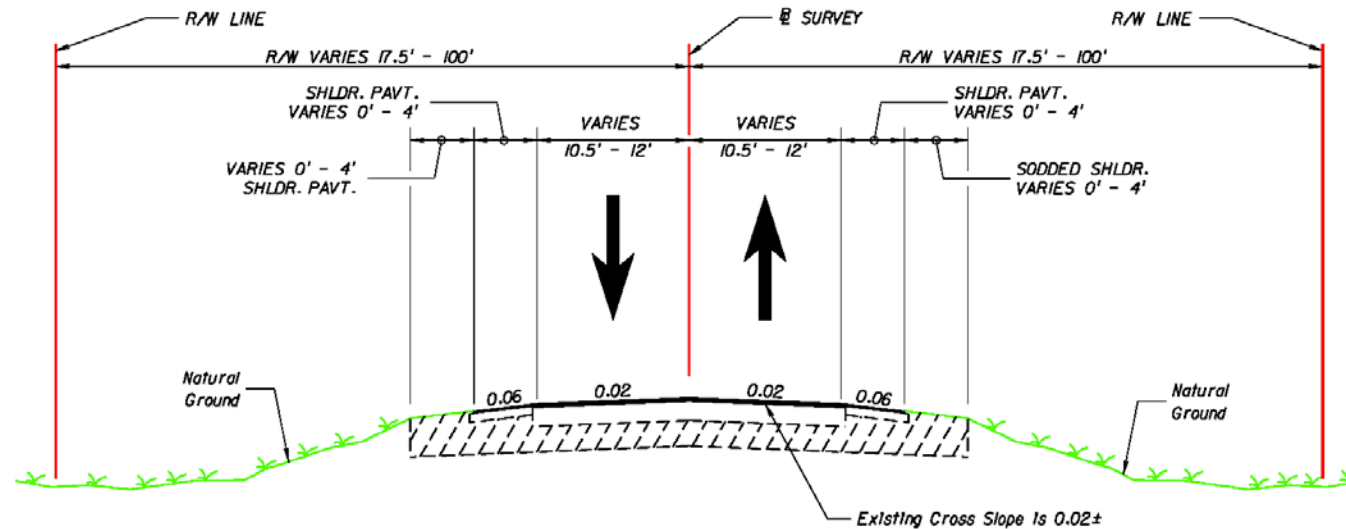




future “greenways” in the MDPROS Master Plan. However, the SFWMD, the owner of these canal maintenance access roads, has no plans at this time for development of these canal maintenance access roads for trail use. Due to their current status as SFWMD canal maintenance access roads, they were not evaluated as potential Section 4(f) resources.

The historic Redland Golf Course is located adjacent to the eastern Krome Avenue right-of-way, north of SW 248th Street/Coconut Palm Drive. The FHWA has determined that the Redland Golf Course site qualifies for a *de minimis* Section 4(f) finding (see [Section 4.2.2](#) for details).





EXISTING TYPICAL SECTION
ALTERNATE CORRIDOR 3
SR 997/ KROME AVENUE/ SW 177TH AVENUE

N.T.S.

Figure 2-5 – Alternate Corridor 3 Typical Section





2.2.4 Alternate Corridor 4: SW 167th Avenue/Tennessee Road

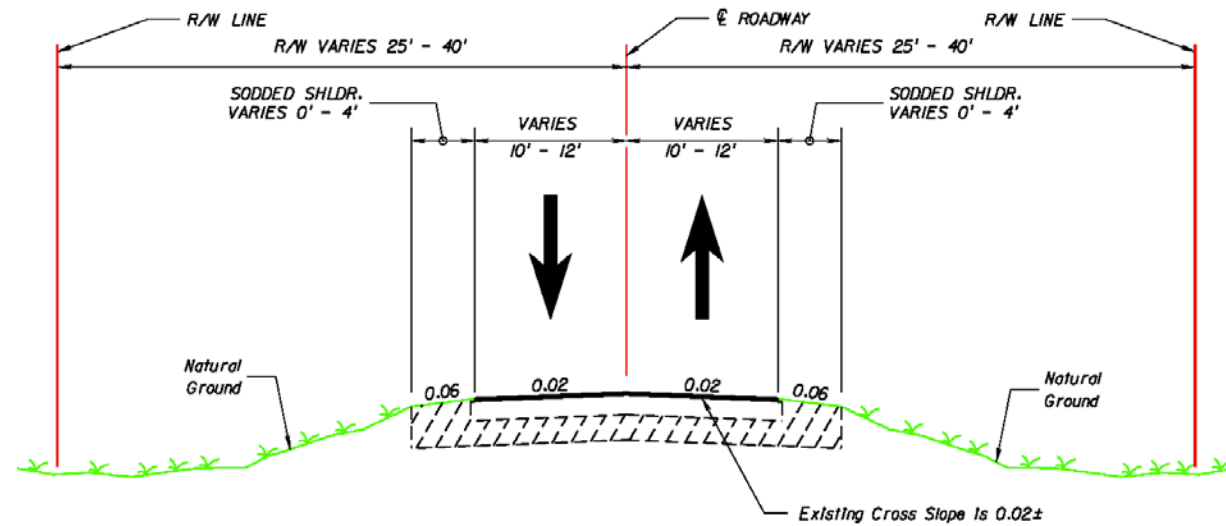
The existing roadway along this corridor alternate consists of a two-lane undivided typical section with no paved shoulders. The lanes vary from ten feet to 12 feet in width with sodded swales on both sides. The right-of-way varies from 50 feet to 80 feet in width. The posted speed limit varies from 35 MPH to 40 MPH. *Figure 2-6* illustrates the typical section of the SW 167th Avenue/Tennessee Road corridor.

The typical land use through this corridor consists of agricultural land with numerous residential and institutional uses. The roadway crosses the C-103/Mowry Canal, the CSX railroad line and the following major intersections: 1) SW 296th Street/Avocado Drive, 2) SW 288th Street/Biscayne Drive, 3) SW 280th Street/Waldin Drive, 4) SW 272nd Street/Epmore Drive, 5) SW 264th Street/Bauer Drive, 6) SW 256th Street/Plummer Drive; 7) SW 248th Street/Coconut Palm Drive, 8) SW 232nd Street/Silver Palm Drive, 9) SW 216th Street/Hainlin Mill Drive, and 10) SW 200th Street/Quail Roost Drive.

North of SW 195th Street, the SW 167th Avenue corridor is comprised of discontinuous intermittent paved, dirt or gravel roadway segments. The segments are interspersed among agricultural or unimproved parcels of land, until the road reaches the northern project terminus at SW 136th Street/Howard Drive. SW 167th Avenue does not contain a bridge crossing for the C-102/Princeton Canal (approximately SW 196th Street).

The Church of Jesus Christ of Latter-Day Saints is located at the southwest corner of the SW 167th Avenue with SW 296th Street intersection. The South Dade Senior High School is located south of SW 282nd Street. The corridor borders the Camp Owaissa Bauer protected natural area. The Miami-Dade Transit bus, Route 70, services this area along this corridor from SW 296th Street/Avocado Drive to SW 280th Street/Waldin Drive. The Route 70 service area includes SW 212th Street/SW 85th Avenue (during midday only), South Dade Health Center, City of Homestead, Homestead High School, City of Florida City, and Prime Outlets at Florida City.





EXISTING TYPICAL SECTION
ALTERNATE CORRIDOR 4
SW 167th AVENUE/TENNESSEE ROAD

N.T.S.

Figure 2-6 – Alternate Corridor 4 Typical Section





2.2.5 Evaluation of Alternate Corridors

In order to evaluate the relative merits of each of the corridor alternates, a series of 16 different criteria including engineering, environmental, socioeconomic, and cost considerations were taken into account. Subsequently, each criterion was rated based on its degree of impact or improvement. The evaluations were generally qualitative (based on field review, data analysis and engineering judgment) and were used for comparisons between the alternates. The resulting corridor evaluation matrix is presented in **Table 2-1** (at the end of this section). The summary of the corridor analysis is detailed below:

2.2.5.1 Alternate 1 (SW 187th Avenue)

Alternate 1 (SW 187th Avenue) does not address the critical need for improved safety on Krome Avenue. The analysis also indicates that this alternate is anticipated to create undesirable impacts to noise levels. Social, neighborhood and community facility impacts are anticipated along this corridor, including potential impacts to the rural residences in the area, as well as potential impacts to two churches and a park, among others. Implementing improvements along this corridor will require some right-of-way to be acquired from both residential and agricultural business parcels. There is not a high density of residential uses along the corridor and moderate right-of-way costs are anticipated. SW 187th Avenue is presently not a state road facility. Implementing the improvements will require attaining a State Road designation and an upgrade of the facility to SIS standards.

2.2.5.2 Alternate 2 (SW 182nd Avenue)

Alternate 2 (SW 182nd Avenue) does not address the critical need for improved safety on Krome Avenue. The analysis also indicates that this alternate is anticipated to create undesirable impacts to noise levels. Social and neighborhood impacts are anticipated along this corridor, including impacts through the mobile home park. Implementing improvements along this corridor will produce substantial residential relocation impacts and will require substantial right-of-way to be acquired from both residential and agricultural business parcels. The unimproved segment of SW 182nd Avenue will require the construction of a bridge crossing at the C-102/Princeton Canal (at approximately SW 196th Street). SW 182nd Avenue is presently not a state road facility. Implementing the improvements will require attaining a State Road designation and an upgrade of the facility to SIS standards.

2.2.5.3 Alternate 3 (Krome Avenue/SW 177th Avenue)

Alternate 3 (Krome Avenue/SW 177th Avenue) provides the only solution to the existing deficient safety issues on Krome Avenue and has the least impacts and the greatest benefits. The analysis indicates that this Alternate improves safety on Krome Avenue resulting from better roadway geometrics and operational conditions. Implementing improvements along Krome Avenue will enhance the regional network connectivity and the local business economy. The analysis also indicates that this alternate is anticipated to create an increase over existing noise levels. Community facility impacts are anticipated along this corridor, including potential impacts to three churches and a school, among others; however, because the churches and the





park are set back from the existing roadway, the impacts are anticipated to only affect unimproved land and not the actual facilities. Implementing improvements along this corridor is not anticipated to require residential relocations.

2.2.5.4 *Alternate 4 (SW 167th Avenue)*

Alternate 4 (SW 167th Avenue) does not address the critical need for improved safety on Krome Avenue. The analysis also indicates that this Alternate is anticipated to create undesirable impacts to noise levels. Social, neighborhood and community facility impacts are anticipated along this corridor, including potential impacts to the numerous existing residences along the corridor as well as potential impacts to a school and a church, among others. This alternative is anticipated to negatively impact the less rural traffic patterns in the area. Implementing improvements along this corridor will produce high residential relocation impacts and will require substantial right-of-way to be acquired from a variety of local area businesses, as well as from residential and agricultural parcels of land. The unimproved segment of SW 167th Avenue will require the construction of a bridge crossing for the C-102/Princeton Canal (at approximately SW 196th Street). SW 167th Avenue is presently not a state road facility. Implementing the improvements will require attaining a State Road designation and an upgrade of the facility to SIS standards.

2.2.5.5 *Alternate Comparison*

Any relocation of the existing corridor (Krome Avenue) will require major social adjustments and produce impacts that result in substantial increases to noise levels. A relocation of the existing corridor would also maintain the existing unsafe and substandard conditions along Krome Avenue and at intersections with local cross streets. Additionally, the Krome Avenue corridor provides regional connectivity that cannot be adequately replaced by any of the other corridors in the near future.

Based on an evaluation of the corridor alternates, as presented in the evaluation matrix, it was determined that **Alternate Corridor #3** (Krome Avenue) is the most viable corridor for the improvement project. The analysis indicates that there is no practical and/or viable alternate corridor to Krome Avenue, and needed improvements to this roadway must be implemented to improve safety and traffic operations. Selecting the existing Krome Avenue corridor provides the clearest separation between urban and rural land use in the area and also provides capacity and system linkage solutions that could not be accomplished by the other alternates without causing unnecessary environmental and/or social impacts. Implementing improvements along the Krome Avenue / SW 177th Avenue corridor is the only way to meet the critical need for improved area safety and provides the best solution to problems associated with network connectivity and congestion, resulting in the best service to the overall public interest.

As a result, the existing SR 997/Krome Avenue/SW 177th Avenue corridor was selected and recommended for further consideration. A more detailed investigation and evaluation of specific improvement alternatives to address safety, geometric, operational, and access issues for this corridor is provided in the *Preliminary Engineering Report* prepared as part of the PD&E study.





2.2.5.6 Project Termini

The alternatives analyzed have been reviewed pursuant to 23 CFR §771.111(f) and FHWA guidance published November 5, 1993 (NEPA and Transportation Decision-making, The Development of Logical Project Termini “Guidance”) regarding the development of logical project termini. This analysis is informed principally by the project purpose and need. As discussed in section 1.0, the primary objective of the project is to address safety deficiencies along this section of the Krome Avenue corridor. Secondary objectives are to provide additional capacity to accommodate anticipated future area travel demand, address other design deficiencies along the roadway, maintain the effectiveness of the corridor as an emergency evaluation route and improve regional connectivity.

The regulations outline three general principles to use in analysis of highway projects. The proposed action shall:

1. connect logical termini and be of sufficient length to address environmental matters on a broad scope;
2. have independent utility or independent significance, i.e., be usable and be a reasonable expenditure even if no additional transportation improvements in the area are made; and
3. not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

Logical termini are defined as rational end points for a transportation improvement and for a review of the environmental impacts. Logical termini are a function of project purpose. Typically such termini have been points of major traffic generation due to the fact that in most cases traffic generators determine the size and type of project being proposed. Where congestion is not the primary purpose of a project this type of termini selection is not appropriate. Safety projects present such an example.

The FHWA guidance distinguishes safety projects. One case study provided focuses on a road segment with a number of high accident locations and site specific geometric deficiencies. The project termini selected (an intersection and another point along the roadway without an intersection) were reasonable. The guidance indicated that “for projects involving safety improvements, almost any termini (e.g., political jurisdictions, geographical features) can be chosen to correspond to those sections where safety improvements are most needed.” The guidance recognizes that even if other safety improvements are needed beyond the segment shown, the project does not need to be expanded to include those other improvements.

The Krome Avenue project’s primary purpose is safety. The Preliminary Engineering Report documents abnormally high crash rates for the entire project length. The safety issues identified relate not just to the intersections but also to the fundamental corridor design. The high proportion of truck traffic, undivided two lane section, roadside clear zone, lack of median and access management issues all compromise safety. The project identified from SW 296th Street to SW 136th Street exhibits the safety deficiencies identified and under the Guidance represent logical project termini.





The project identified also displays independent utility or independent significance. Construction of the project will address documented safety and capacity problems and address the primary project purpose even if no additional transportation improvements in the area are made. The project is usable and a reasonable expenditure even if the other safety issues along the Krome Avenue corridor are not addressed. These improvements do not force other improvements on the corridor.

Finally, the project improvements do not restrict consideration of alternatives for other reasonably foreseeable transportation improvements. Other alternatives, whether they be other corridors or improvements to the Krome Avenue corridor beyond project boundaries would not alter the fact that the project area is and would remain deficient from a safety point of view. The selection of other projects would not eliminate the need for this project, nor would this project prejudice consideration of others.





Table 2-1 – Corridor Evaluation Matrix

CRITERIA		ALTERNATE CORRIDORS			
		ALTERNATE 1 (SW 187 th Avenue)	ALTERNATE 2 (SW 182 nd Avenue)	ALTERNATE 3 (SW 177 th Avenue)	ALTERNATE 4 (SW 167 th Avenue)
ENGINEERING	Roadway Safety	Unspecified traffic diversion is anticipated to alleviate congestion issues with low - moderate residual safety improvement.	Unspecified traffic diversion is anticipated to alleviate congestion issues with low - moderate residual safety improvement.	Improved geometric and operational conditions including: median separator, uniform pavement width, striping, shoulder and intersections provide high safety benefit.	Unspecified traffic diversion is anticipated to alleviate congestion issues with low - moderate residual safety improvement.
	Local Land Use Plan Compliance	Maintain Status Quo.	Maintain Status Quo.	Maintain Status Quo.	Maintain Status Quo.
	Traffic Service /Travel Demand	Significant increase to existing volume of traffic.	Significant increase to existing volume of traffic.	Improved traffic service.	Significant increase to existing volume of traffic.
	Transportation Network / Regional Connectivity	Moderate local network improvements.	Moderate local network improvements.	Improved regional network connectivity.	Moderate local network improvements.
	Access Management	No significant impacts.	No significant impacts.	Some impacts anticipated.	No significant impacts.
	Maintenance of Traffic	Temporary impacts.	Temporary impacts.	Temporary impacts to businesses.	Temporary impacts.
	Utility Impacts	Moderate impacts expected no RR crossing.	Moderate impacts expected, with RR crossing.	Moderate impacts expected, with RR crossing.	Moderate impacts expected, with RR crossing.
ENVIRONMENT	Environmental Considerations	Significant increase in noise levels anticipated.	Significant increase in noise levels anticipated.	Moderate increase in noise levels anticipated.	Significant increase in noise levels anticipated.
	Physical Impacts	Temporary construction impact.	Temporary construction impact.	Temporary construction impact and temporary access disruption to businesses.	Temporary construction impact.
	Natural Habitat Impacts	Adjacent to protected natural areas with no potential for impacts during construction.	Adjacent to protected natural areas with a potential for impacts during construction.	Adjacent to protected natural areas with a potential for impacts during construction.	Adjacent to protected natural areas with a potential for impacts during construction.
COST	Corridor extension to the north and at various intersections	Corridor discontinuity and intersection development.	Corridor discontinuity and intersection development.	Some improvement at various intersections needed.	Corridor discontinuity and intersection development.
	Relocation Potential and Mitigation Cost	Moderate relocation potential.	Significant relocation potential.	Limited additional R/W needed.	Significant relocation potential.
	Construction and R/W Cost	High construction cost and moderate R/W cost anticipated.	High construction cost and high R/W cost anticipated.	Moderate construction cost and low R/W cost anticipated.	High construction cost and high R/W cost anticipated.
SOCIO-ECONOMIC	Social & Neighborhood Impacts	Significant impacts anticipated.	Significant impacts anticipated.	No significant changes.	Significant impacts anticipated.
	Economic Impacts	Minimal impact to local economy anticipated.	Minimal impact to local economy anticipated.	Benefit to local business economy anticipated. Moderate impact to agricultural land use anticipated.	Minimal impact to local economy anticipated.
	Community Facilities Impacts	Significant impacts to churches, park and other community facilities anticipated.	Limited community impacts.	Potential impacts to churches and other community facilities anticipated.	Potential impacts to school, church and parks anticipated.

KEY:	Least negative impacts and/or most favorable outcomes
	Moderate impacts and/or moderate outcomes
	Most negative impacts and/or least favorable outcomes

Source: Corridor Analysis Report, March 2011





2.3 PROJECT ALTERNATIVES

Both no-build and build alternatives were considered for the Krome Avenue corridor between SW 296th Street to SW 136th Street as part of this PD&E Study. The alternatives were prepared to provide appropriate levels of service commensurate with the anticipated social, economic, and environmental impacts involved. The alternatives developed were further refined with the objective of avoidance and minimization of impacts. The decisions to achieve these objectives are documented in the Preliminary Engineering Report and summarized below .

2.3.1 No-Build Alternative

The No-Build Alternative assumes that no improvements would be implemented within the corridor. With this alternative, the existing roadway would be maintained “as is”, with a two-lane, undivided typical section (*see Figure 2-1*). The lack of grass median and adequate shoulders, the substandard drainage and water quality treatment facilities, the non-optimized traffic operations, and the existing safety deficiencies would be retained. This alternative is considered viable during the public hearing and final selection phase to serve as a comparison to the study proposed alternatives.

The No-Build Alternative has a number of positive aspects, since it would not require expenditure of public funds for design, right-of-way acquisition, construction or utility relocation. Traffic would not be disrupted due to construction, thereby avoiding inconveniences to local residents and businesses. Also, there would be no direct or indirect impacts to the environment, the socio-economic characteristics, community cohesion, or system linkage of the area.

However, the No-Build Alternative fails to fulfill the needs of this project for the area. If no improvements are made, the safety deficiencies associated with this corridor will remain. A grass median, which is anticipated to reduce head-on and angle crashes between the intersections, will not be provided along the corridor within the study limits, with this alternative.

Under the No-Build Alternative, future roadway congestion during peak hours will increase. Krome Avenue, within the study limits, and its cross roads will experience congestion during peak hours and operate below the desirable LOS. If improvements are not constructed before the year 2040, Krome Avenue will operate at LOS E or F, and all signalized intersections will operate at LOS F. The congestion in the area may cause additional impacts to this roadway. Such impacts may include excessive delays in travel time, large reduction of average travel speeds, excess fuel consumption from idling vehicles, increased air pollutants [particularly hydrocarbons and carbon monoxide (CO)], and higher crash rates. Krome Avenue will become even less effective as an evacuation route for the area.

Furthermore, the design deficiencies along the corridor within the study limits identified in *Section 1.2.2.3* will not be addressed by the No-Build Alternative. Left side clear recovery area, which is anticipated to reduce centerline cross over head-on crashes, will not be provided. No stormwater treatment or peak attenuation will be provided. No median separation will be





provided, so SHS access management requirements that will limit conflict points and enhance safety will continue to be unmet.

The No-Build Alternative will not be consistent with area growth management and transportation plans, which designate Krome Avenue within the study limits as a four-lane roadway. The No-Build Alternative will not accommodate the social and economic demands of a growing Miami-Dade County. Lastly, the No-Build Alternative will maintain the existing typical section, which does not provide for either pedestrian or bicycle continuous access along Krome Avenue within the study limits.

2.3.2 Transportation System Management Alternative

This alternative involves selectively upgrading deficient roadway areas with improved signage, turn lanes, pavement markings, and traffic signals. TSM intersection improvements have already been constructed along portions of the study corridor. However, this alternative will not satisfy the safety, capacity, and traffic operations improvement needs along this section of roadway. Short-term safety improvement projects were implemented at ten intersections along Krome Avenue within the study limits between the years 2003 to 2007.

- | | |
|--|---|
| 1. SW 136 th Street (2003-2004) | • SW 216 th Street (2007) |
| 2. SW 168 th Street (2003-2004) | • SW 256 th Street (2003-2004) |
| 3. SW 184 th Street (2007) | • SW 272 nd Street (2003-2004) |
| 4. SW 192 nd Street (2003-2004) | • SW 288 th Street (2007) |
| 5. SW 200 th Street (2007) | • SW 296 th Street (2007) |

These intersection improvements consisted of adding separate turn lanes or modifying pavement markings to delineate turn lanes. These improvements were anticipated to reduce crashes at the intersections with the exception of head-on and ran-off-the-road crashes. The TSM improvements did not substantially enhance the operation of the signalized intersections or safety issues associated with this corridor and did not include drainage improvements. The crash data analysis for this project, provided in the *Preliminary Engineering Report*, documents that the safety ratios have remained at or above twice the statewide average subsequent to these improvements. The congestion along Krome Avenue is caused by a lack of through lane capacity and high turning volumes. Long-term improvements are necessary to mitigate the existing safety deficiencies, increase capacity to accommodate future travel demand, improve access management, and provide stormwater management. Therefore, further consideration of this alternative was eliminated from the analysis.

2.3.3 Action Plan Alternative

The Krome Avenue Action Plan was developed in 1997 and approved by the MPO in 1999. The primary purpose of the plan was to identify and evaluate alternatives for transportation improvements other than additional general use lanes and restrictive medians along Krome Avenue. The limits of the Action Plan were from SR 5/US 1 to SR 25/US 27. The plan





considered improvements to accommodate present and future traffic conditions within the corridor. The proposed improvements were primarily oriented toward access management, intersection improvements, multi-modal improvements, resurfacing, drainage improvements, and pedestrian/bicycle and equestrian facilities.

The goal of the Krome Avenue Action Plan was to develop corridor modifications to improve safety and future LOS along the corridor. The main focus of the Action Plan was to develop the immediately needed improvements and to address future mobility along Krome Avenue. Long-term improvement alternatives included safety enhancements, intersection modifications, traffic signal modifications, access management, and shoulder enhancements.

In the Action Plan a two lane undivided typical section (see *Figure 2-7*) with roadway improvements was recommended for implementation for Krome Avenue north of SW 296th Street/Avocado Drive. This typical section would consist of the following elements:

- One 12-foot (12') wide travel lane in each direction
- Two-foot (2') wide center painted buffer median
- Two eight-foot (8') wide outside shoulders [five-foot (5') paved and three-foot (3') unpaved]
- Roadside swale width varies throughout the project depending on existing right-of-way
- Eight-foot (8') wide bike path parallel to the southbound travel lanes
- Eight-foot (8') wide equestrian path parallel to the northbound travel lanes.
- Design Speed of 45 MPH (reconstruction criteria)
- Recoverable Terrain (Clear Zone) is 18 feet (18') wide from the edge of pavement (minimum)
- Border Width varies from the shoulder point throughout the project depending on existing right-of-way [eight feet (8') minimum]
- The total width of this typical section is 62 feet (62') minimum

The border width is measured from the shoulder point to the right-of-way line. The border width accommodates roadside components such as signing, drainage features, guardrail, fencing and clear zone, the construction and maintenance of the facility, and permitted public utilities.

The Action Plan Alternative typical section does not comply with horizontal clearance distance criteria and does not meet design criteria to tie to and harmonize with the existing ground. Right-of-way acquisition is required for this typical section since some areas have an existing right-of-way of 35 feet and the minimum right-of-way for the proposed typical section is 62 feet.

The Krome Avenue Action Plan's original typical section was revised by the PD&E Study project team in order to comply with FDOT criteria for reconstruction of a facility. The updated typical section was used during this study as a comparison with the proposed study alternatives (see *Figure 2-8*). This "modified" typical section would consist of the following elements:





- One 12-foot (12') wide travel lane in each direction
- Two-foot (2') wide center painted buffer median
- Two eight-foot (8') wide outside shoulders [five-foot (5') paved and three-foot (3') unpaved]
- Roadside swale width varies throughout the project depending on existing right-of-way
- Eight-foot (8') wide bike path parallel to the southbound travel lanes
- Eight-foot (8') wide equestrian path parallel to the northbound travel lanes
- Eight-foot (8') wide grass horizontal clearance between the bike path and the right-of-way line (includes harmonization areas)
- Nine-foot (9') wide grass horizontal clearance between the equestrian path and the right-of-way line (includes harmonization areas)
- Design Speed of 45 MPH (reconstruction criteria)
- Recoverable Terrain (Clear Zone) is 18 feet (18') wide from the edge of pavement (minimum)
- Border Width varies from the shoulder point throughout the project depending on existing right-of-way [eight feet (8') minimum]
- The total width of this typical section is 78 feet (78') minimum

The Action Plan “original” and “modified” alternatives both fail to fulfill the needs of this project for the area. With each of these alternatives, the safety deficiencies associated with this corridor will remain. A grass median, which is anticipated to reduce head-on and angle crashes between the intersections, will not be provided along the corridor within the study limits with either of these alternatives.

Under the “original” or the “modified” Action Plan alternatives, future roadway congestion during peak hours will increase. The congestion in the area may cause additional impacts to this roadway. Such impacts may include excessive delays in travel time, large reduction of average travel speeds, excess fuel consumption from idling vehicles, increased air pollutants, and higher crash rates. In addition, Krome Avenue will become even less effective as an evacuation route for the area with the Action Plan alternatives.

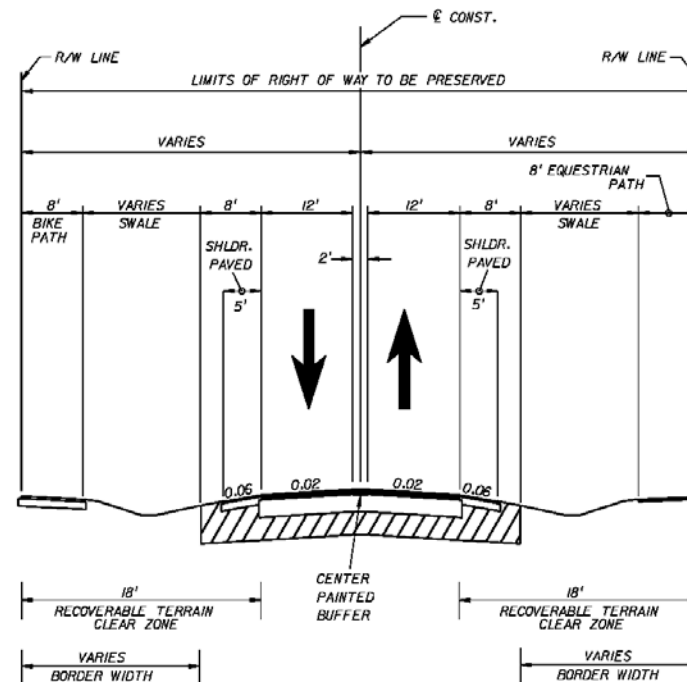
Furthermore, the design deficiencies along the corridor within the study limits will not be addressed by either the “original” or the “modified” Action Plan alternative. Adequate left side clear recovery area, which is anticipated to reduce centerline cross over head-on crashes, will not be provided. No median separation will be provided, so SHS access management requirements that will limit conflict points and enhance safety will continue to be unmet.

The Action Plan Alternatives, “original” and “modified,” will not be consistent with area growth management and transportation plans, which designate Krome Avenue within the study limits as a four-lane roadway. Neither alternative will accommodate the social and economic demands of a growing future Miami-Dade County. Therefore, both the “original” and the “modified” Action Plan alternatives were eliminated from further consideration.





Action Plan - Original



RECONSTRUCTION CRITERIA

DESIGN SPEED ≥ 45 MPH
RECOVERABLE TERRAIN / CLEAR ZONE = 18' (MINIMUM)
BORDER WIDTH = 8' (MINIMUM)
MEDIAN PAINTED BUFFER WIDTH = 2'

NOTE:

1. TYPICAL SECTION DOES NOT COMPLY WITH HORIZONTAL CLEARANCE AND TIE DOWN DISTANCES.
2. LIMITS OF R.O.W. CANNOT BE PRESERVED WITH THIS TYPICAL SECTION SINCE SOME AREAS HAVE AN EXISTING R.O.W. OF 35' AND THE MINIMUM R.O.W. FOR THE PROPOSED TYPICAL IS $\geq 62'$.
3. SWALES SHOULD BE A MINIMUM OF 12'.
4. BIKE PATH SHOULD BE A MINIMUM OF 10'.

N.T.S.

Figure 2-7 – Action Plan (Original) Proposed Typical Roadway Section





Diagram illustrating the cross-section of a standard two-lane highway, showing various zones and dimensions:

- RAW LINE**: Right of Way Line.
- R/W TB' (MINIMUM)**: Right of Way Total Width (Minimum).
- 39' (MINIMUM)**: Minimum width of the travel lanes and shoulders.
- 8' SOD**: Shoulder of Driveway (8 feet).
- 8' BIKE PATH**: 8 feet wide bike path.
- VARIES SWALE**: Variable width swale.
- 8'**: Shoulder width.
- 12'**: Travel lane width.
- SHLDR. PAV'D**: Shoulder Paved.
- 2'**: Minimum width of the center painted buffer.
- 8' EQUESTRIAN PATH**: 8 feet wide equestrian path.
- 9'**: Shoulder of Driveway (9 feet).
- 2'**: Minimum width of the shoulder of driveway.
- 0.02**: Slope of the shoulder of driveway.
- 1/4**: Slope of the shoulder of driveway.
- 0.06**: Slope of the shoulder of driveway.
- 0.02**: Slope of the shoulder of driveway.
- 0.02**: Slope of the shoulder of driveway.
- 0.06**: Slope of the shoulder of driveway.
- 1/4**: Slope of the shoulder of driveway.
- 0.02**: Slope of the shoulder of driveway.
- 1/2 MAX**: Maximum slope of the shoulder of driveway.
- 18' (MINIMUM) RECOVERABLE TERRAIN CLEAR ZONE**: Minimum width of the recoverable terrain clear zone.
- 8' (MINIMUM) BORDER WIDTH**: Minimum width of the border.
- CENTER PAINTED BUFFER**: Center painted buffer.

RECONSTRUCTION CRITERIA
DESIGN SPEED > 45 MPH
RECOVERABLE TERRAIN / CLEAR ZONE = 18' (MINIMUM)
BORDER WIDTH = 8' (MINIMUM)
MEDIAN PAINTED BUFFER WIDTH = 2'

NOTE:

1. SWALES SHOULD BE A MINIMUM OF 12'.
2. BIKE PATH SHOULD BE A MINIMUM OF 10'.

N.T.S.

Figure 2-8 – Action Plan (Modified) Proposed Typical Roadway Section





2.3.4 Proposed Build Alternatives

As discussed in the previous sections, the No-Build, TSM, and Action Plan alternatives will not provide adequate traffic capacity or safety improvements to the corridor; therefore, additional study alternatives have been developed to enhance safety, increase capacity, and improve traffic operations along the Krome Avenue corridor. Numerous build alternative typical sections were considered and are discussed in the following sections.

2.3.4.1 Initial Evaluation of Conceptual Typical Sections

The purpose of this section is to discuss the conceptual typical sections that were developed during the initial phase of the study. All conceptual typical sections were evaluated and analyzed in general in order to develop build alternatives for further analysis.

A total of 46 typical sections were developed during the initial alternative analysis. These conceptual alternatives were categorized by the number of lanes. The development and evaluation of these typical sections were based on established design controls for the various elements of a roadway such as lane width, median width, shoulder width, design speed, horizontal alignment, vertical alignment, drainage considerations, and intersecting roads. The selection of the appropriate criteria and standards was influenced by safety features, traffic volumes and composition (trucks, farm equipment, etc.), levels of service, functional classification, environmental considerations and community issues.

Two-Lane Undivided Typical Section

Ten two-lane undivided typical sections were evaluated using the Action Plan recommendations. The proposed improvements encompassed resurfacing the existing lanes, adding a two-foot center buffer and including pedestrian/bicycle facilities. The pedestrian/bicycle facilities included a combination of sidewalks, shared-use paths, bike lanes, and equestrian paths.

Two-Lane Divided Typical Section

Eight two-lane divided typical sections were evaluated in order to include a grass median and areas for exclusive turn lanes. The proposed improvements included rural and urban characteristics. The rural improvements encompassed the addition of a depressed grass median, paved inside shoulders, one 12-foot-wide travel lane in each direction, paved outside shoulders, drainage swales, and pedestrian/bicycle facilities. The urban improvements encompassed the addition of a raised grass median, curb and gutter, and pedestrian/bicycle facilities. The pedestrian/bicycle facilities in both the rural and urban sections included a combination of sidewalks, shared-use paths, bike lanes, and equestrian paths.

Three-Lane Undivided Typical Section

Eight three-lane undivided typical sections were evaluated to include a center two-way left turning lane. The proposed improvements included rural and urban characteristics. The rural





improvements encompassed the addition of a 12-foot-wide center two-way left turning lane, one 12-foot-wide travel lane in each direction, paved outside shoulders, drainage swales, and pedestrian/bicycle facilities. The urban improvements encompassed the addition of a 12-foot center two-way left turning lane, one 12-foot-wide travel lane in each direction, outside curb and gutter, and pedestrian/bicycle facilities. The pedestrian/bicycle facilities in both the rural and urban sections included a combination of sidewalks, shared-use paths, bike lanes, and equestrian paths.

Two-Lane Divided Typical Section with Passing Zones

Four two-lane divided typical sections with passing zones were evaluated to include an additional lane that will serve as a passing lane. Each passing zone consisted of one passing lane per direction alternatively. The proposed improvements included rural and urban characteristics with the same roadway characteristics as the two-lane divided typical section described above.

Four-Lane Divided Typical Section

Fifteen four-lane divided typical sections were evaluated to include a grass median and additional through lanes. The proposed improvements included rural, suburban, and urban characteristics. The rural improvement encompassed the addition of a depressed grass median, paved inside shoulders, two 12-foot-wide travel lanes in each direction, paved outside shoulders, drainage swales, and pedestrian/bicycle facilities. The suburban and urban improvements encompassed the addition of a raised median, curb and gutter, and pedestrian/bicycle facilities. For all the sections, the pedestrian/bicycle facilities included a combination of sidewalks, shared-use paths, bike lanes, and equestrian paths.

Five-Lane Undivided Typical Section

One five-lane undivided typical section was evaluated to include a center two-way left turning lane. The proposed improvements included urban characteristics only. The urban improvements encompassed the addition of a 12-foot-wide center two-way left turning lane, two 12-foot-wide travel lanes in each direction and pedestrian/bicycle facilities. The pedestrian/bicycle facilities included bike lanes and sidewalks along both sides of the roadway.

The 46 conceptual typical sections developed above were refined with the objective of addressing the needs of the corridor. Krome Avenue is part of the SIS network. Future FDOT roadway improvements on existing SIS facilities are required to bring the corridors up to current FDOT design standards to the extent practical. This includes the corridors that may have previously been hindered or prevented in achieving full SIS standards. This requirement came after the FDOT adopted the FIHS standards in 1992³.

³ Since the time of alternative development for this project, the Florida Intrastate Highway System sunset in 2012 and was replaced with the SIS.





Unregulated access to the SHS was determined to be one of the contributing factors to congestion and functional deterioration of the system statewide. SIS requirements call for an Access Class 2 or 3. Krome Avenue carries an access management designation of Class 2 within the project limits and the *Binding Access Control Plan* recently submitted by the FDOT to Miami-Dade County maintains the Access Class 2 designation. Access Class 2 facilities are highly controlled access facilities distinguished by the ability to serve high speed and high volume traffic over long distances in a safe and efficient manner. This access class is further distinguished by a highly controlled limited number of connections, median openings, and infrequent traffic signals. Segments of the SHS having this classification usually have access restrictions supported by local ordinances and agreements with the FDOT, and are generally supported by existing or planned service (frontage) roads. SHS Access Class 2 facilities also include median separation.

Krome Avenue is classified as an Urban Principal Arterial for the segment between SW 296th Street and SW 272nd Street and is classified as a Rural Principal Arterial for the segment between SW 272nd Street and SW 136th Street, because the UDB for Miami-Dade County crosses Krome Avenue at SW 272nd Street. Based on these classifications, all urban typical sections initially evaluated were eliminated from further alternative analysis for the segment between SW 272nd Street and SW 136th Street due to the roadway type classification. In addition, all urban typical sections between SW 296th Street and SW 272nd Street were eliminated in favor of a suburban transition typical section.

A review of crash history was conducted in relation to typical section elements. A total of 1424 crashes were reported along the corridor during the 12-year study period (1999-2010). Twenty-six fatalities were reported during the study period with 58% of the crashes resulting in injuries. Rear-end crashes were the leading type of crashes within the corridor, accounting for 36% of the crashes experienced during the 12-year period. Angle and left turn crashes were the second and third leading types of crashes, accounting for 24% and 10% respectively of the crashes along the corridor during the study period. The high percentage of angle, rear-end and left turn collisions are typical of a roadway having poor intersection geometry and/or needing additional capacity. Currently access along Krome Avenue is not restrictive which does not comply with Access Class 2 criteria. Left turning vehicles can turn anywhere along the corridor without reaching the signalized intersections. These vehicles will interrupt the movement of through traffic causing major traffic backups and rear-end collisions. Also, these same vehicles will make it difficult for incoming traffic to maintain their traveling speed causing sideswipes, angle and left turn collisions. Furthermore, crashes that occur between the intersections, such as head-on crashes are typically more severe compared to intersection crashes resulting in higher rate of crash severity. Thirty-four head-on crashes were reported during the study period accounting for 2% of the crashes. Median separation as a long-term solution is anticipated to reduce head-on crashes. Based on this type of constraint, a grass median should be included to accommodate the left turn lanes, improve access management, and separate the oncoming traffic.





Based on the need to provide traffic separation for safety, all undivided typical sections were eliminated from further analysis due to the safety need for a grass median separation. The need for a grass median separation is essential for this corridor due to the high volumes of left turn vehicles and the head-on crashes occurring within the study limits.

The 46 initially developed conceptual typical sections were presented at the Citizen's Advisory Committee meetings (January 24th, 2006 and February 28th, 2006) and Public Informational Workshop (May 31st, 2006). Public participation and input, including from the Citizen's Advisory Committee, was instrumental in the development and evaluation of project typical sections as the project was being developed.

During those meetings, there was minimal public support for and substantial opposition to the urban/non-rural typical sections, as well as, any typical sections which included equestrian paths, sidewalks on both sides of the roadway, and fully designated bike lanes. In general, citizens, residents, and business owners expressed a goal to preserve the rural character of the area to the extent practical, including a desire to avoid "extra" wide pavement for "urban" bike lanes located between the travel lanes and the shoulder (for additional details, see [Section 5.3.1](#)). As a result of this input, typical sections containing those elements were eliminated from further analysis.

All the typical sections evaluated were based on a range of design speeds from 45 MPH to 65 MPH. Since Krome Avenue is part of the SIS network, the design speed for controlled access facilities shall be at least 65 MPH in rural areas and 50 MPH in urbanized areas. As discussed in [Section 5.2.1](#) of the *Preliminary Engineering Report*, in recognition of the possibility of upgrading the existing posted speed limit of 45 MPH along Krome Avenue within the study limits, the design speed for the suburban section was recommended to be 55MPH, greater than the minimum required. Based on the decision to use a design speed of 55 MPH , all initially developed conceptual typical sections that were based on a design speed of 45 MPH (urban) were eliminated from further analysis.

A Design Exception was submitted for approval in July 2005 to the FDOT Central Office requesting a reduction in the required design speed from 65 MPH, as called for in the *Plans Preparation Manual*, to 55 MPH. The design exception was denied by FDOT Central Office in October 2005. A copy of the Design Exception documentation is included in [Appendix F](#). The purpose of this exception was for the development of a narrower rural typical roadway section that would require less right-of-way along the corridor. After rejection of the design exception, all the initially developed conceptual typical sections evaluated that used a design speed less than 65 MPH in conjunction with a rural typical section were eliminated from further analysis.

Based on additional agency input, the relatively short section of Krome Avenue south of SW 272nd Street, which is classified as an Urban Principal Arterial, was given further evaluation. A suburban typical section was considered as a transition from a rural to an urban section which also minimizes the need for right-of-way acquisition. The suburban typical section was considered along the corridor within the study limits from SW 296th Street to SW 272nd Street. The reduced suburban typical section was developed using a design speed of 55 MPH.





2.3.4.2 Final Development of Typical Sections for Alternatives Analysis

After the initial evaluation of the 46 conceptual typical sections, five build alternatives were identified to move forward, in addition to the no-build, TSM and the Action Plan alternatives. The five alternatives were considered viable with respect to public support. The five proposed build alternatives use six of the previously evaluated typical sections. Alternatives 1 through 4 were developed as rural for the entire study length, and Alternative 5 includes both rural and suburban typical sections, where appropriate. These five build alternatives were developed based on the SIS criteria and the *Plans Preparation Manual* criteria using a design speed of 65 MPH for the rural typical section and 55 MPH for the suburban typical section. All build alternatives generally follow the existing horizontal alignment. All build alternatives will include a shared use path. The five build alternatives are detailed in the sections below:

Alternative 1 – Two-Lane Divided Rural Roadway

This alternative would consist of the following elements (see *Figure 2-9*):

- One 12-foot (12') wide travel lane in each direction.
- Forty-foot (40') wide depressed grass median, which includes eight-foot (8') wide inside shoulders (two-foot (2') paved and six-foot (6') unpaved).
- Two 12-foot (12') wide outside shoulders (five-foot (5') paved and seven-foot (7') unpaved). The paved shoulder will include bicycle pavement markings.
- Ten-foot (10') wide two-way shared use path parallel to the southbound travel lanes.
- Ten-foot (10') wide roadside swale parallel to the southbound travel lanes.
- Twenty-two-foot (22') wide roadside swale parallel to the northbound travel lanes.
- Eight-foot (8') wide grass harmonization area between the swale parallel to the northbound travel lanes and the right-of-way line.
- Eight-foot (8') wide grass horizontal clearance/harmonization between the shared use path and the right-of-way line.
- Design Speed of 65 MPH.
- Recoverable Terrain (Clear Zone) of 36 feet (36') from the edge of pavement.
- Border Width of 30 feet (30') from the outside shoulder point.
- Total typical section width of 148 feet (148').
- This typical section will require a Design Variation for Border Width.





Alternative 2 – Two-Lane Divided Rural Roadway with Passing Zones

This alternative would consist of the following elements (see *Figure 2-10*):

- Alternative 2 is the same as Alternative 1 with the addition of one 12-foot (12') wide passing lane.
- Total typical section width of 160 feet (160').
- This typical section calls for a minimum of one passing zone segment area throughout the length of the project between SW 168th Street and SW 136th Street. Each passing zone segment would consist of one passing lane per direction alternatively.
- This typical section will require a Design Variation for Border Width.

Alternative 3 – Four-Lane Divided Rural Roadway

This alternative would consist of the following elements (see *Figure 2-11*):

- Two 12-foot (12') wide travel lanes in each direction.
- Fifty-four-foot (54') wide depressed grass median which includes eight-foot (8') wide inside shoulders (four-foot (4') paved and four-foot (4') unpaved).
- Two 12-foot (12') wide outside shoulders (five-foot (5') paved and seven-foot (7') unpaved). The paved shoulder will include bicycle pavement markings.
- Ten-foot (10') wide two-way shared use path parallel to the southbound travel lanes.
- Twelve-foot (12') wide roadside swale parallel to the southbound travel lanes.
- Twenty-four-foot (24') wide roadside swale parallel to the northbound travel lanes.
- Sixteen-foot (16') wide grass horizontal clearance/harmonization between the shared use path and the right-of-way line.
- Sixteen-foot (16') wide grass harmonization area between the swale parallel to the northbound travel lanes and the right-of-way line.
- Design Speed of 65 MPH.
- Recoverable Terrain (Clear Zone) of 36 feet (36') from the edge of pavement.
- Border Width of 40 feet (40') from the outside shoulder point.
- Total typical section width of 206 feet (206').
- This typical section is fully in compliance with the FIHS facility design criteria⁴.

⁴ Since the time of alternative development for this project, the Florida Intrastate Highway System sunset in 2012 and was replaced with the SIS.





Alternative 4 – Four-Lane Divided Rural Roadway

This alternative would consist of the following elements (see *Figure 2-12*):

- Two 12-foot (12') wide travel lanes in each direction.
- Forty-foot (40') wide depressed grass median which includes eight-foot (8') wide inside shoulders (two-foot (2') paved and six-foot (6') unpaved).
- Two twelve-foot wide outside shoulders (five-foot (5') paved and seven-foot (7') unpaved). The paved shoulder will include bicycle pavement markings.
- Ten-foot (10') wide two-way shared use path parallel to the southbound travel lanes.
- Ten-foot (10') wide roadside swale parallel to the southbound travel lanes.
- Twenty-two foot (22') wide roadside swale parallel to the northbound travel lanes.
- Eight-foot (8') wide grass horizontal clearance/harmonization between the shared use path and the right-of-way line.
- Eight-foot (8') wide grass harmonization area between the swale parallel to the northbound travel lanes and the right-of-way line.
- Design Speed of 65 MPH.
- Recoverable Terrain (Clear Zone) of 36 feet (36') from the edge of pavement.
- Border Width of 30 (30') from the outside shoulder point.
- Total typical section width of 172 feet (172').
- This typical section will require a design variation for border width.





Alternative 5 – Four-Lane Divided Rural/Suburban Roadway

This alternative would consist of two distinct typical sections (see *Figure 2-13a* and *Figure 2-13b*): a suburban section from SW 296th Street to SW 272nd Street and a rural section from SW 272nd Street to SW 136th Street.

The suburban section would consist of the following elements:

- Two 12-foot (12') wide travel lanes in each direction.
- Thirty-foot (30') wide raised median which includes 18 feet (18') of grass, curb and gutter, and four-foot (4') wide paved inside shoulders.
- Two eight-foot (8') wide outside shoulders (five-foot (5') paved and three-foot (3') unpaved). The paved shoulder will include bicycle pavement markings.
- Ten-foot (10') wide two-way shared use path parallel to the southbound travel lanes.
- Ten-foot (10') wide roadside swale parallel to the southbound travel lanes.
- Twenty-foot (20') wide roadside swale parallel to the northbound travel lanes.
- Seven-foot (7') wide grass horizontal clearance/harmonization between the shared use path and the right-of-way line.
- Seven-foot (7') wide grass harmonization area between the swale parallel to the northbound travel lanes and the right-of-way line.
- Design Speed of 55 MPH.
- Recoverable Terrain (Clear Zone) of 30 feet (30') from the outside edge of travel lane.
- Border Width of 35 feet (35') from the outside edge of travel lane to the right-of-way line.
- Total typical section width of 148 feet (148').

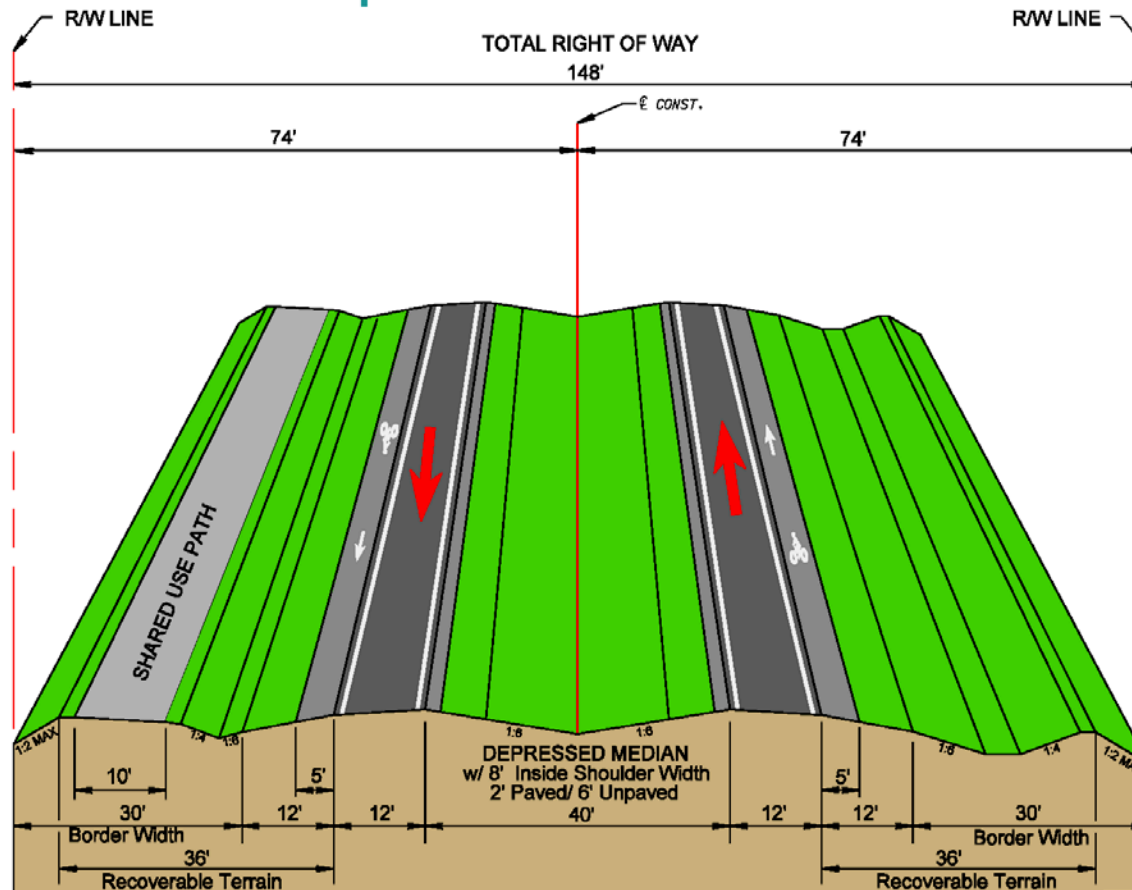
The rural section would consist of the following elements:

- Two 12-foot (12') wide travel lanes in each direction.
- Forty-foot (40') wide depressed grass median which includes eight-foot (8') wide inside shoulders (two-foot (2') paved and six-foot (6') unpaved).
- Two twelve-foot (12') wide outside shoulders (five-foot (5') paved and seven-foot (7') unpaved). The paved shoulder will include bicycle pavement markings.
- Ten-foot (10') wide two-way shared use path parallel to the southbound travel lanes.
- Ten-foot (10') wide roadside swale parallel to the southbound travel lanes.
- Twenty-two-foot (22') wide roadside swale parallel to the northbound travel lanes.
- Seven-foot (7') wide grass horizontal clearance/harmonization between the shared use path and the right-of-way line.
- Five-foot (5') wide grass harmonization area between the swale parallel to the northbound travel lanes and the right-of-way line.
- Design Speed of 65 MPH.
- Recoverable Terrain (Clear Zone) of 36 feet (36') from the outside edge of travel lane.
- Border Width of 27 feet (27') from the outside shoulder point to the right-of-way line.
- Total typical section width of 166 feet (166').
- This typical section will require a Design Variation for Border Width.





Proposed Alternative 1



2- Lane Divided Roadway - Rural Typical Section

N.T.S.

Figure 2-9 – Alternative 1 Proposed Typical Roadway Section (Rural)



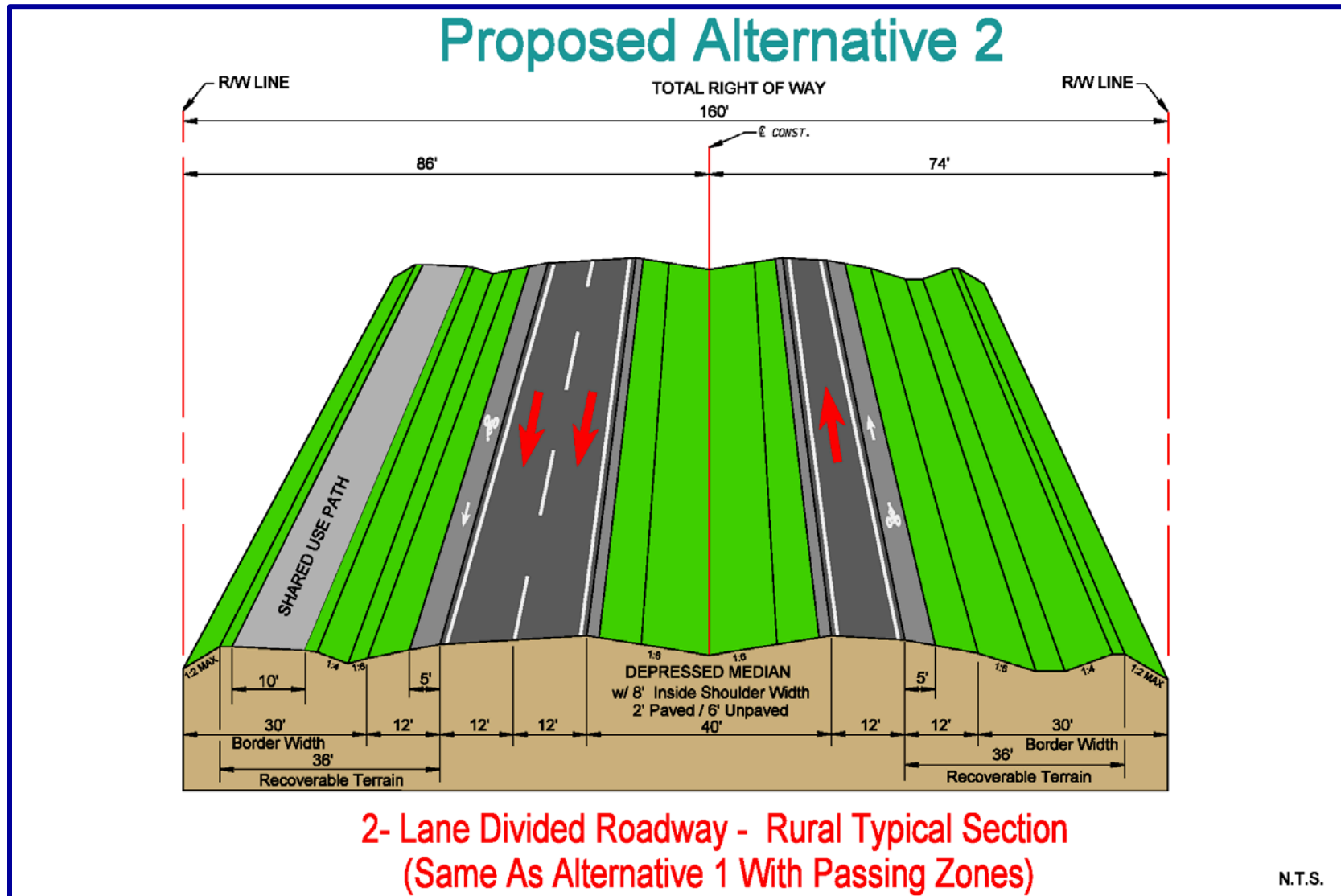


Figure 2-10 – Alternative 2 Proposed Typical Roadway Section (Rural)



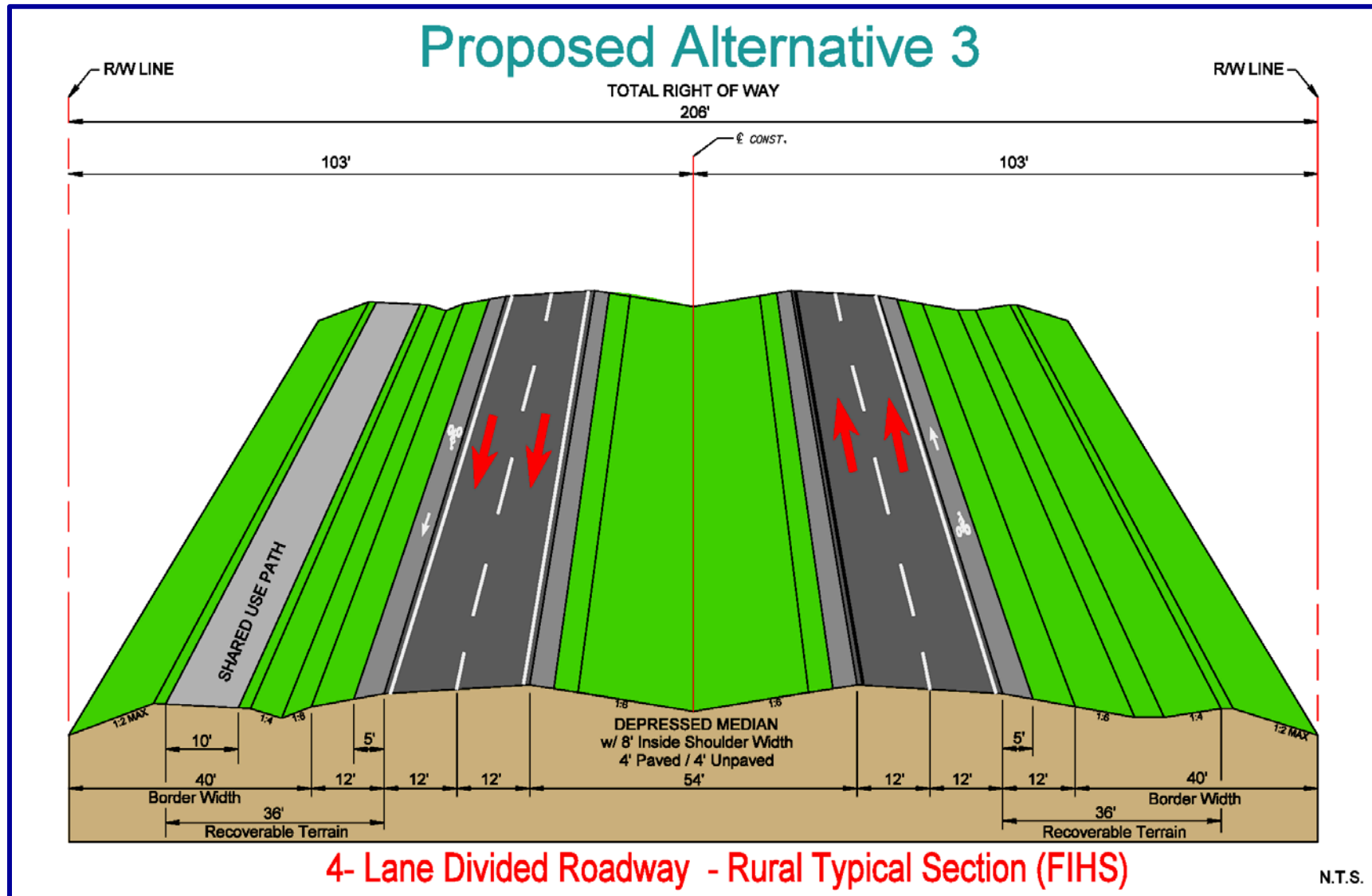
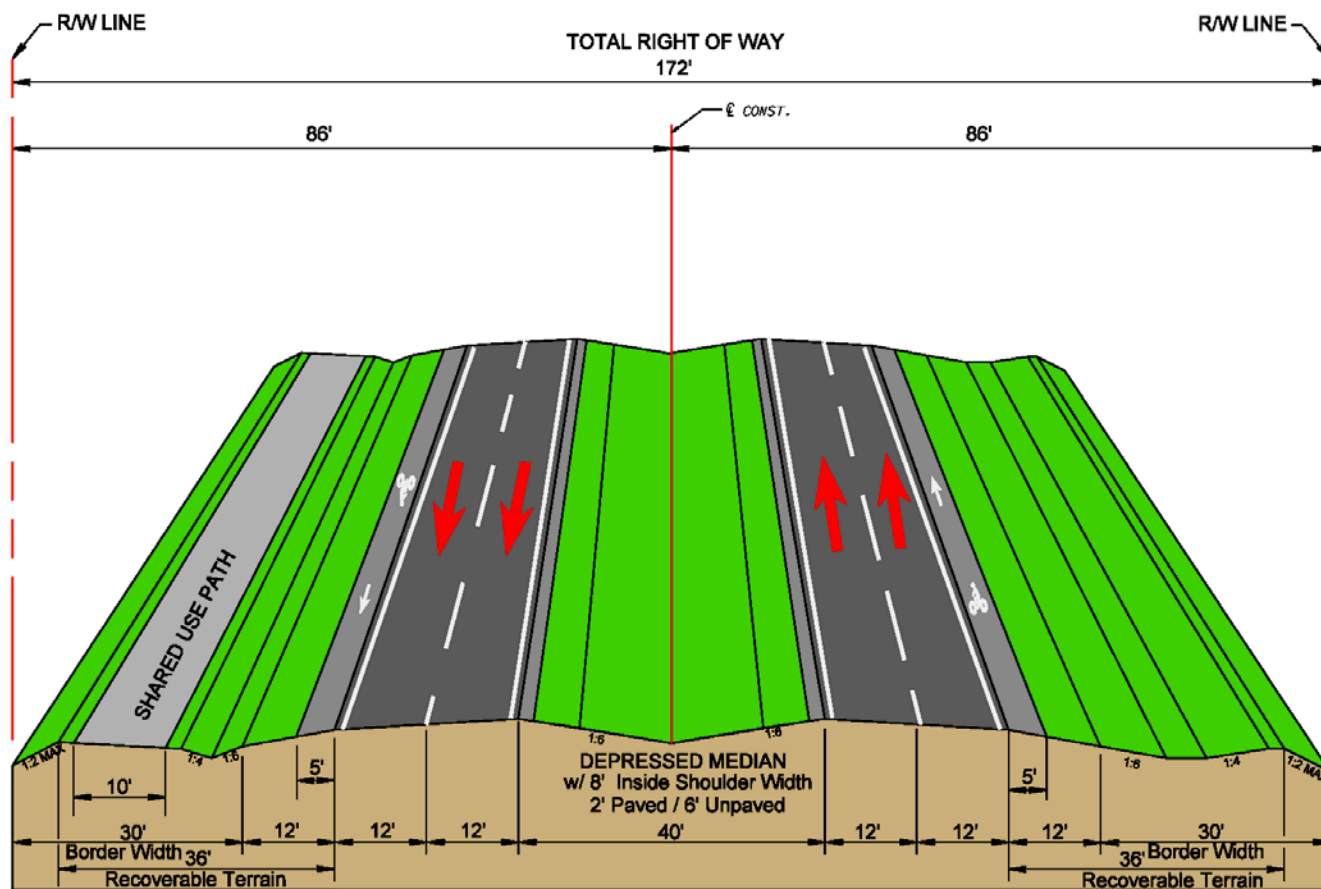


Figure 2-11 – Alternative 3 Proposed Typical Roadway Section (Rural)





Proposed Alternative 4



4- Lane Divided Roadway - Rural Typical Section

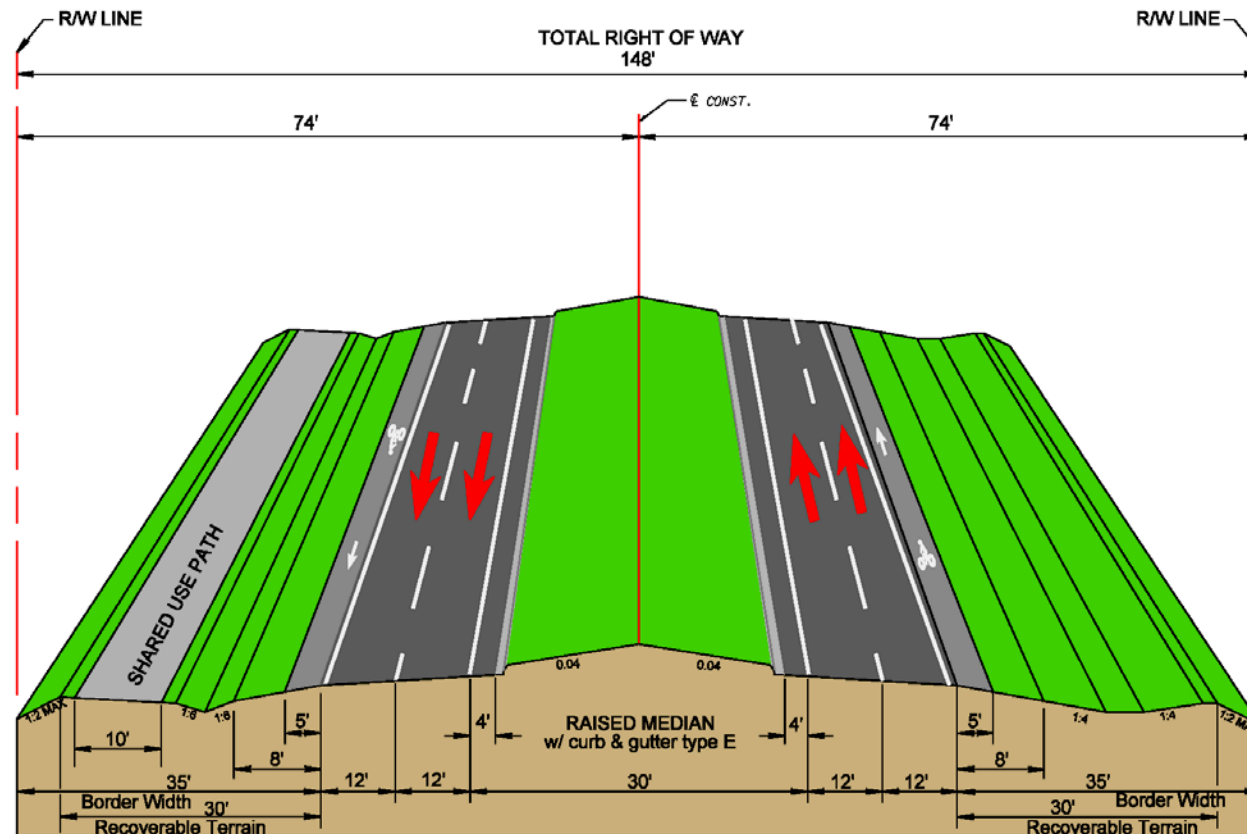
N.T.S.

Figure 2-12 – Alternative 4 Proposed Typical Roadway Section (Rural)





Proposed Alternative 5



4- Lane Divided Roadway - Suburban Typical Section
From SW 296th Street to SW 272nd Street

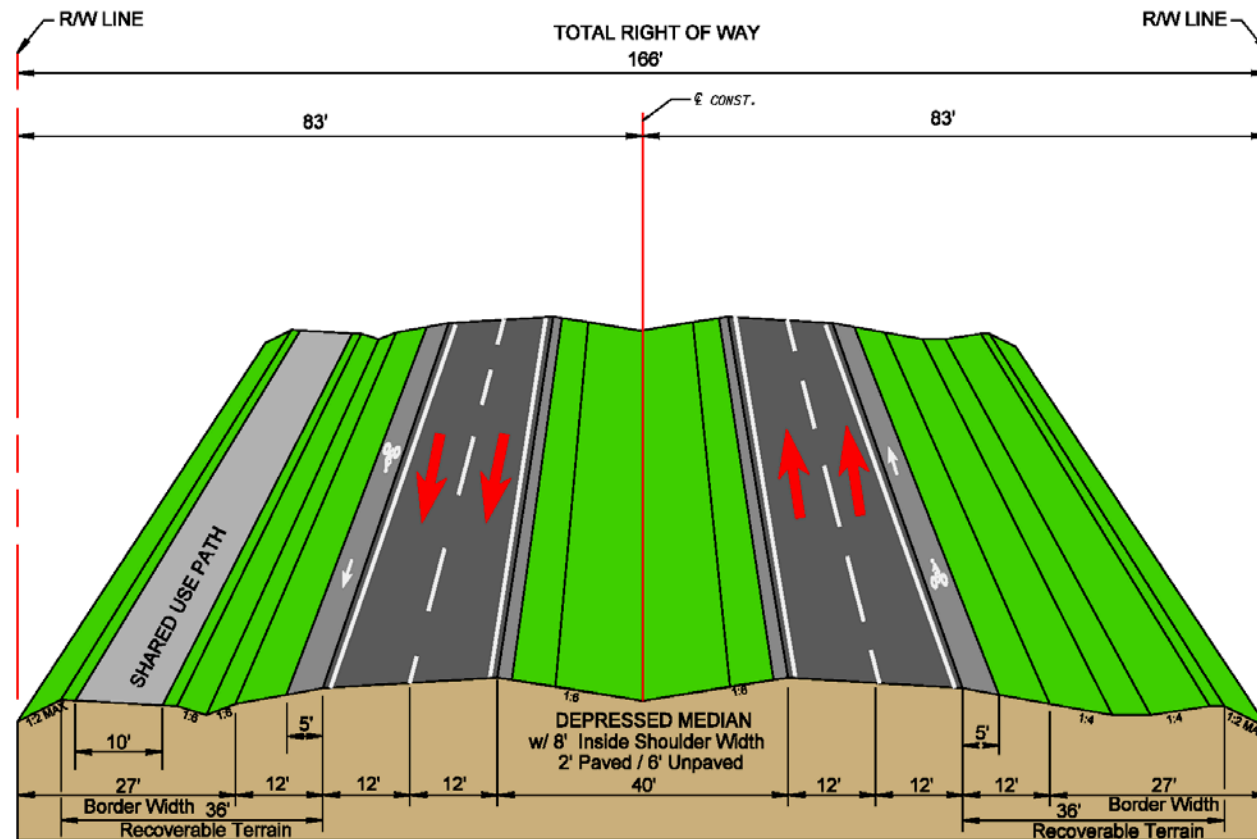
N.T.S

Figure 2-13a – Alternative 5 Proposed Typical Roadway Section (Suburban)





Proposed Alternative 5



4- Lane Divided Roadway - Rural Typical Section
From SW 272nd Street to SW 136th Street

N.T.S

Figure 2-13b – Alternative 5 Proposed Typical Roadway Section (Rural)





2.4 STRUCTURES

2.4.1 Bridge

There is one bridge structure, built in 1969, located within the project limits. The bridge carries Krome Avenue over the SFWMD's C-103/Mowry Canal (Bridge No. 870161) and is located at along Krome Avenue milepost 4.868 between SW 280th Street/Waldin Drive and SW 278th Street. These intersections are located just south and north of this bridge.

The bridge superstructure consists of three simply supported concrete flat slab spans at 20.0 feet in length each with an overall bridge length of 60.4 feet, which bear on a substructure comprised of four pile bents. The intermediate bents are located within the C-103/Mowry Canal while the end bents/abutments are located on the side banks which have sand cement riprap for slope stabilization. The deck cross section accommodates two through lanes (one in each direction), shoulders and 1.5 foot safety curbs. The curb to curb width is 44 feet while the outside to outside dimension is approximately 47.5 feet. The canal design section consists of a bottom elevation of (-)5.0 feet National Geodetic Vertical Datum (NGVD), a ten-foot bottom width, one to one canal side slopes, a design water surface elevation of 6.0 feet NGVD, and an optimum water surface elevation of 5.6 feet NGVD.

As part of the "National Bridge Inventory (NBI) and Structural Inventory and Appraisal Program" conducted by the FHWA, FDOT is required to biannually inspect and evaluate all bridges under its jurisdiction. Both the superstructure and substructure are in very good condition. A bridge inspection was conducted on March 1, 2010 and the report reflects a rating of seven on a scale of zero to nine with zero failing and nine excellent. Based on the "FDOT Bridge Management System Bridge Inspection Report" the overall sufficiency rating is 97.7 out of 100.

The existing width of the bridge would not be able to accommodate any of the proposed typical sections. Thus, replacement of the existing bridge with a wider typical section is proposed. Due to the roadway typical section and geometric alignment of the roadway, the existing bridge is anticipated to be replaced with two side-by-side structures separated by an opening for bridge maintenance purposes. A proposed conceptual design for the replacement bridges was developed and is detailed below:

Northbound Structure:

- Two 12-foot (12') wide travel lanes.
- One six-foot (6') wide inside shoulder.
- One ten-foot (10') wide outside shoulder with bicycle pavement markings.
- Total bridge width of 42 feet 7.5 inches (42'7.5").





Southbound Structure:

- Two 12-foot (12') wide travel lanes.
- One 12-foot (12') wide auxiliary lane. Due to the close proximity to the SW 280th Street intersection (approximately 150 feet south of structure), this bridge carries a right turn lane. The right turn lane starts at station 172+20, north of the structure, and continues across the bridge to the intersection.
- One six-foot (6') wide inside shoulder.
- One ten-foot (10') wide outside shoulder.
- One five-foot (5') wide bicycle lane to provide continuity from the striped shoulder north of the bridge through to the intersection.
- One 10-foot (10') wide two-way shared-use path parallel to the travel lanes.
- Total bridge width of 73 feet 0.5 inches (73'0.5")

Figure 2-14 depicts the conceptual bridge typical section. During construction, the existing structure will be used in order to facilitate the maintenance of traffic.

2.4.2 Culvert

A dual-pipe reinforced concrete pipe culvert exists within the study limits. The culvert carries Krome Avenue over the SFWMD's C-102/Princeton Canal and is located at Krome Avenue milepost 10.135 north of the SW 200th Street/Quail Roost Drive intersection.

The culvert consists of two 60-inch-diameter reinforced concrete pipes extending 100 feet long under Krome Avenue perpendicular to the travel lanes. The SFWMD C-102 canal Structure 194 (S-194) is located on the west side of Krome Avenue parallel to the travel lanes. This structure is installed as a drainage control for water elevation stages in the C-102 canal to the west. It is sized to allow limited runoff to the east when the capacity is available and to provide a supplemental supply of water during drier periods.

The existing culvert length would not be able to accommodate any of the proposed typical sections. Thus, extending the existing concrete pipes or replacement is proposed at this location. The design details and calculations for the proposed culvert conditions will be developed during the final design phase of the project. For Alternatives 1, 2, 4, and 5, a vertical drainage headwall with pedestrian/bicycle railing and guardrail will be provided on the western side of the roadway at this location. Therefore, no impacts are anticipated to the S-194 structure. For Alternative 3, due to the overall width of the typical section, impacts are anticipated to the S-194 structure, most likely requiring a full replacement.



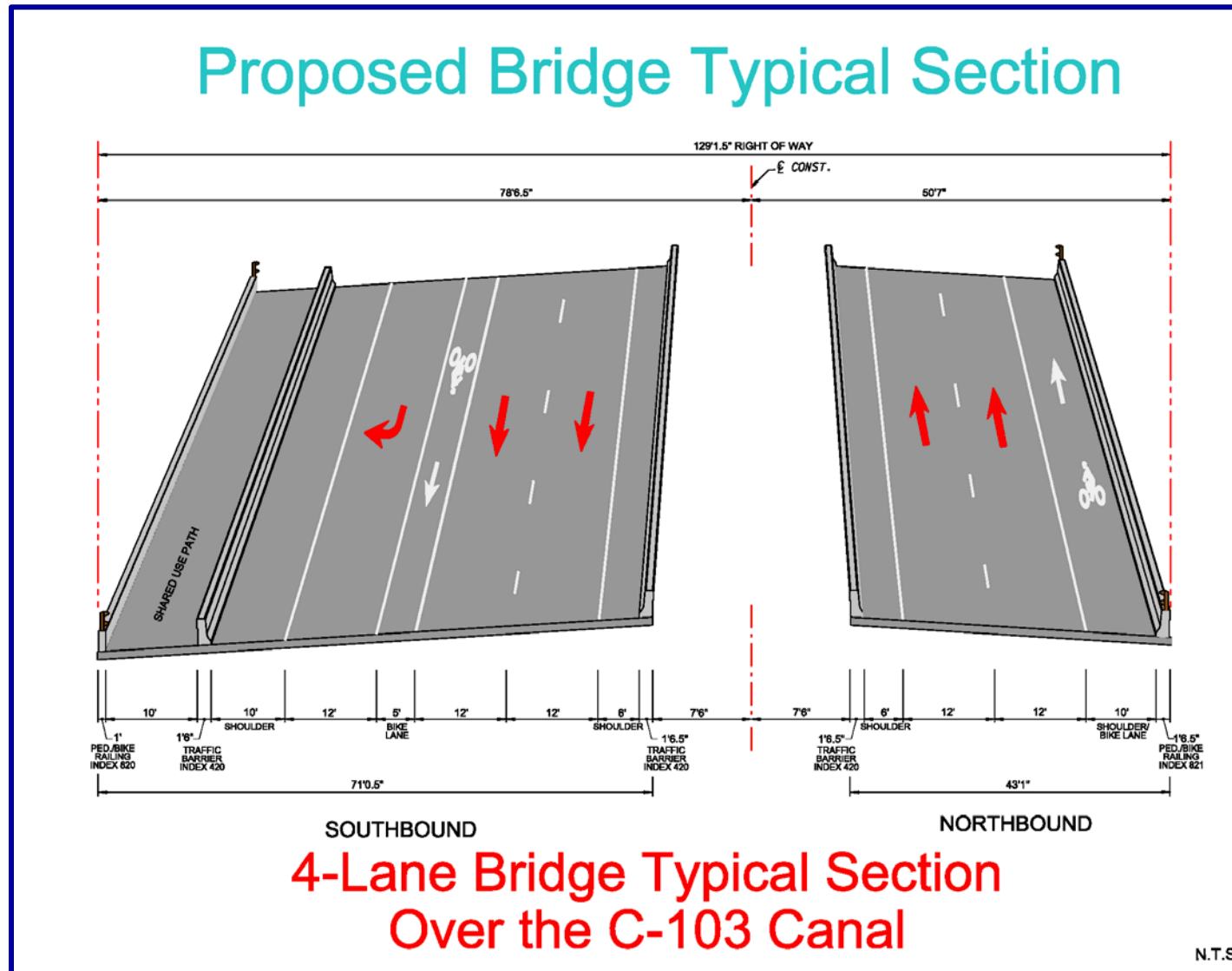


Figure 2-14 – Proposed Bridge Typical Section





2.5 ALTERNATIVES EVALUATION MATRIX

The five build alternatives described in the previous sections, along with the No-Build, TSM, and Action Plan alternatives, were evaluated to determine which best meets the purpose and need for the project. In order to evaluate the relative merits of each alternative, the project purpose, needs, and objectives, as well as a series of 41 different criteria (i.e., engineering, socioeconomic, environmental, and cost considerations) were taken into account. Subsequently, each alternative was evaluated based on its direct impact on or improvement to each criterion. Cumulative impacts for each of the environmental criterion are discussed in [Section 4.3.18](#) of this document. The resulting purpose, need, and objectives matrix is presented in [Table 2-2](#) and the alternatives evaluation matrix is presented in [Table 2-3](#).



Table 2-2 – Project Needs and Objectives Matrix

Evaluation Parameter	No Build (Existing Conditions)	TSM	Action Plan (Two-Lane)	Action Plan (Two-Lane - Modified)	Alternative 1 (Two-Lane)	Alternative 2 (Two-Lane with Passing Zone)	Alternative 3 (Four-Lane - FHHS)	Alternative 4 (Four-Lane)	Alternative 5 (Four-Lane) Rural/Suburban
Project Needs									
Project Needs within the Study Corridor									
Need - Safety	Nil	Low	Low	Low	Moderate	Moderate	High	High	High
Need - Capacity	Nil	Low	Low	Low	Low	Low	High	High	High
Need - Design Deficiencies (Roadside Clear Zone)	Nil	Nil	Low	Low	High	High	High	High	Moderate
Need - Design Deficiencies (Drainage)	Nil	Nil	High	High	High	High	High	High	High
Need - Design Deficiencies (Access Management)	Nil	Nil	Nil	Nil	Moderate	Moderate	High	High	High
Area Wide Needs									
Evacuation Routes and Emergency Services	Nil	Low	Low	Low	Moderate	Moderate	High	High	High
Consistency with Federal, State, or Local Government Authority	Nil	Nil	Nil	Nil	Nil	Nil	High	High	Moderate
Social Demand or Economic Developments	Nil	Nil	Nil	Nil	Nil	Nil	High	High	High
Modal Interrelationships	Nil	Nil	Moderate	Moderate	High	High	High	High	High
Project Objectives									
Primary Objective - Address safety deficiencies along this section of the Krome Avenue corridor	Nil	Low	Low	Low	Moderate	Moderate	High	High	High
Secondary Objective - Provide additional capacity to accommodate anticipated future area travel demand	Nil	Low	Low	Low	Low	Low	High	High	High
Secondary Objective - Address other design deficiencies along the roadway	Nil	Nil	Low	Low	Moderate	Moderate	High	High	High
Secondary Objective - Maintain the effectiveness of the corridor as an emergency evacuation route	Nil	Low	Low	Low	Moderate	Moderate	High	High	High
Secondary Objective - Provide for regional connectivity	Nil	Nil	Nil	Nil	Nil	Nil	High	High	High
Legend									
Nil – Does not meet the project need/objective to any degree									
Low – Meets the project need/objective to a low degree									
Moderate – Meets the project need/objective to a moderate degree									
High – Meets the project need/objective to a high degree									



The No-Build Alternative (keeping the existing rural typical section, which varies from 35- to 200-feet wide) does not meet the purpose and need of the project. Area safety deficiencies will remain, no grass median will be provided, no provisions for pedestrians or bicyclists will be provided, existing/future congestion will not be alleviated, corridor access management will not be improved, the use of the corridor as an evacuation route will not be enhanced, the area will continue to not meet water quality and quantity criteria, and the facility will not be consistent with the Miami-Dade County CDMP. The No-Build Alternative will have the least environmental impacts, will not require any business or residential relocations, and has the lowest cost of all the alternatives.

The TSM Alternative (applying short-term safety improvements along the existing rural corridor that do not add capacity) does not meet the purpose and need of the project. Area safety deficiencies will remain, no grass median will be provided, no provisions for pedestrians or bicyclists will be provided, existing/future congestion will not be alleviated, corridor access management will not be improved, the use of the corridor as an evacuation route will not be enhanced, the area will continue to not meet water quality and quantity criteria, and the facility will not be consistent with the Miami-Dade County CDMP. The TSM Alternative will also have the least environmental impacts, will not require any business or residential relocations, and is anticipated to have the second lowest cost of all the alternatives.

The Action Plan Alternative (a two-lane undivided rural typical section with a two-foot-wide center painted buffer median, requiring 62 feet of right-of-way) does not meet the purpose and need of the project. Area safety deficiencies will remain, no grass median will be provided, no provisions for pedestrians will be provided, existing/future congestion will not be alleviated, corridor access management will not be improved, the use of the corridor as an evacuation route will not be enhanced, area water quality and quantity criteria will only marginally be met, and the facility will not be consistent with the Miami-Dade County CDMP. The Action Plan Alternative will provide a bicycle path, will have low environmental impacts, will not require any business or residential relocations, and is anticipated to have the third lowest cost of all the alternatives.

The Modified Action Plan Alternative (a two-lane undivided rural typical section with a two-foot-wide center painted buffer median, modified to comply with FDOT criteria for reconstruction of a facility, requiring 78 feet of right-of-way) does not meet the purpose and need of the project. Area safety deficiencies will remain, no grass median will be provided, no provisions for pedestrians will be provided, existing/future congestion will not be alleviated, corridor access management will not be improved, the use of the corridor as an evacuation route will not be enhanced, area water quality and quantity criteria will only marginally be met, and the facility will not be consistent with the Miami-Dade County CDMP. The Modified Action Plan Alternative will provide a bicycle path, will have low environmental impacts, will not require any business or residential relocations, and is anticipated to have the fourth lowest cost of all the alternatives.

Build Alternative 1 (a two-lane divided rural roadway with a 148-foot-wide typical section) will fulfill some of the purpose and need of the project. Area safety will be increased by the grass



median that will be provided. Provisions for pedestrians and bicyclists will be included. Build Alternative 1 requires a Design Variation for Border Width. Existing/future congestion will not be alleviated. Corridor access management will be improved. The use of the corridor as an evacuation route will not be enhanced. Area water quality and quantity criteria will be considerably improved. The facility will not be consistent with the Miami-Dade County CDM. Of the five build alternatives, Build Alternative 1 will have the least impacts to surface waters, the historic golf course, and the EEL property. Of the five build alternatives, it will require the fewest business and residential relocations. Of the five build alternatives, Build Alternative 1 has the lowest total cost (\$142,635,875).

Build Alternative 2 (a two-lane divided rural roadway with passing zones with a 160-foot-wide typical section) will fulfill some of the purpose and need of the project. Area safety will be increased by the grass median that will be provided. Provisions for pedestrians and bicyclists will be included. Build Alternative 2 requires a Design Variation for Border Width. Existing/future congestion will not be alleviated. Corridor access management will be improved. The use of the corridor as an evacuation route will not be enhanced. Area water quality and quantity criteria will be considerably improved. The facility will not be consistent with the Miami-Dade County CDM. Of the five build alternatives, Build Alternative 2 will also have the least impacts to surface waters, the historic golf course, and the EEL property. Of the five build alternatives, it will require the second fewest business relocations and the second fewest residential relocations. Of the five build alternatives, Build Alternative 2 has the second lowest total cost (\$145,814,936).

Build Alternative 3 (a four-lane divided rural roadway, meeting FIHS criteria⁵, with a 206-foot-wide typical section) will fulfill the purpose and need of the project. Area safety will be increased by the grass median that will be provided. Provisions for pedestrians and bicyclists will be included. Build Alternative 3 fully meets design criteria. Capacity will be increased by the additional lane in each direction. Corridor access management will be considerably improved. The use of the corridor as an evacuation route will be enhanced. Area water quality and quantity criteria will be considerably improved. The facility will be consistent with the Miami-Dade County CDM. Of the five build alternatives, Build Alternative 3 will have the greatest impacts to surface waters, the historic golf course, and the EEL property. Additionally, Build Alternative 3 will impact two historic residential properties. Of the five Build Alternatives, it will require the greatest number of business and residential relocations and it will impact the greatest number of parcels. Of the five build alternatives, Build Alternative 3 has the highest total cost (\$203,693,570).

Build Alternative 4 (a four-lane divided rural roadway, meeting *Plans Preparation Manual* criteria, with a 172-foot-wide typical section) will fulfill the purpose and need of the project. Area safety will be increased by the grass median that will be provided. Provisions for pedestrians and bicyclists will be included. Build Alternative 4 requires a Design Variation for Border Width. Capacity will be increased by the additional lane in each direction. Corridor

⁵ Since the time of alternative development for this project, the Florida Intrastate Highway System sunset in 2012 and was replaced with the SIS.



access management will be considerably improved. The use of the corridor as an evacuation route will be enhanced. Area water quality and quantity criteria will be considerably improved. The facility will be consistent with the Miami-Dade County CDMP. Of the five build alternatives, Build Alternative 4 will have the second greatest impacts to surface waters, the historic golf course, and the EEL property. Additionally, Build Alternative 4 will impact two historic residential properties. Of the five Build Alternatives, it will require the third fewest business relocations and the second fewest residential relocations. Of the five build alternatives, Build Alternative 4 has the second highest total cost (\$166,678,509).

Build Alternative 5 (a four-lane divided roadway, with a suburban typical section requiring 148-feet of right-of-way and a rural typical section requiring 166-feet of right-of-way) will fulfill the purpose and need of the project. Area safety will be increased by the grass median that will be provided. Provisions for pedestrians and bicyclists will be included. Build Alternative 5 requires a Design Variation for Border Width in the rural typical section area. Capacity will be increased by the additional lane in each direction. Corridor access management will be considerably improved. The use of the corridor as an evacuation route will be enhanced. Area water quality and quantity criteria will be considerably improved. The facility will be consistent with the Miami-Dade County CDMP. Of the five build alternatives, Build Alternative 5 will have the third greatest impacts to surface waters, the historic golf course, and the EEL property. Of the five Build Alternatives, it will require the second fewest business relocations and the second fewest residential relocations. Of the five build alternatives, Build Alternative 5 has the third highest total cost (\$158,804,525).



Table 2-3 – Alternatives Evaluation Matrix

Evaluation Parameters		No Build	TSM	Action Plan	Action Plan	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
		Existing Typical Section		(Two-Lane)	(Two-Lane - Modified)	(Two-Lane)	(Two-Lane with Passing Zone)	(Four-Lane) (Florida Intrastate Highway System)	(Four-Lane)	(Four-Lane) Rural/Suburban Typical Section
ENGINEERING	Median Width	None	None	2' Painted Buffer	2' Painted Buffer	40' Grass Depressed	40' Grass Depressed	54' Grass Depressed	40' Grass Depressed	Rural: 40' Grass Depressed/Suburban: 30' Raised with Grass and Curb and Gutter
	Lane Width	12'	12'	12'	12'	12'	12'	12'	12'	12'
	Pedestrian Provisions	None	None	None	None	10' Shared Use Path	10' Shared Use Path	10' Shared Use Path	10' Shared Use Path	10' Shared Use Path
	Bicycle Provisions	None	None	8' Bike Path	8' Bike Path	10' Shared Use Path 5' Paved Shoulder	10' Shared Use Path 5' Paved Shoulder	10' Shared Use Path 5' Paved Shoulder	10' Shared Use Path 5' Paved Shoulder	10' Shared Use Path 5' Paved Shoulder
	Outside Shoulder Width (Paved Width)	Varies 0' to 5' (0 to 5')	12' (5')	8' (5')	8' (5')	12' (5')	12' (5')	12' (5')	12' (5')	Rural: 12' (5') Suburban: 8' (5')
	Inside Shoulder Width (Paved Width)	None	None	None	None	8' (2')	8' (2')	8' (4')	8' (2')	Rural: 8' (2') Suburban: 4' paved
	Border Width	Not defined due to right-of-way variations	Not defined due to right-of-way variations	Reconstruction criteria requires 8' minimum - not defined	Reconstruction criteria requires 8' minimum - provided	New construction criteria requires 40'. Proposed 30' - requires Design Variation	New construction criteria requires 40'. Proposed 30' - requires Design Variation	40' provided, meets new construction criteria	New construction criteria requires 40'. Proposed 30' - requires Design Variation	New construction criteria requires 40' for rural typical section Proposed 27' - requires Design Variation.
	Total Right-of-Way	Maintain existing (35'-200')	Maintain existing (35'-200')	62'	78'	148'	160'	206'	172'	Rural: 166' Suburban: 148'
	Typical Section & Geometric Issues	Inadequate shoulder width. Insufficient storage lanes. Lack of turning lanes. Non-standard Clear Zone and Border Width. No median separation. No passing lanes.	Non-Standard Clear Zone and Border Width. No median separation; does have two-foot center painted buffer. No passing lanes.	Sub-standard shoulder width. No median separation; does have two-foot center painted buffer. No passing lanes.	Sub-standard shoulder width. No median separation; does have two-foot center painted buffer. No passing lanes.	No passing lanes. Requires Design Variation for Border Width.	Limited passing zones. Requires Design Variation for Border Width.	None, meets all criteria.	Requires Design Variation for Border Width.	Rural: requires Design Variation for Border Width. Suburban: none, meets all criteria.
	Safety	No improvements. Existing safety issues will continue.	Limited improvements (shoulders, turn lanes, storage lanes)	Limited improvements (shoulders, turn lanes, storage lanes, two-foot center painted buffer)	Limited improvements (shoulders, turn lanes, storage lanes, two-foot center painted buffer, provides 8' minimum Border Width)	Moderate improvements since it does not accommodate passing maneuvers. Meets all other safety standards.	Moderate improvements since it accommodates passing maneuvers only in one area. Meets all other safety standards.	Considerable improvements. SIS standard width median. More capacity. Passing maneuvers accommodated throughout the project corridor.	Considerable improvements. <i>Plans Preparation Manual</i> standard width median. More capacity. Passing maneuvers accommodated throughout the project corridor.	Considerable improvements. <i>Plans Preparation Manual</i> standard width median. More capacity. Passing maneuvers accommodated throughout the project corridor.
	Traffic Operations	No improvements.	Provides adequate turn and storage lanes. Opposing traffic friction remains.	Provides adequate turn and storage lanes. Opposing traffic friction remains.	Provides adequate turn and storage lanes. Opposing traffic friction remains.	Provides adequate turn and storage lanes. Eliminates opposing traffic friction. Precludes passing maneuvers.	Provides adequate turn and storage lanes. Eliminates opposing traffic friction. Provides limited passing opportunities.	Provides adequate turn and storage lanes. Eliminates opposing traffic friction. Provides passing opportunities throughout the project corridor.	Provides adequate turn and storage lanes. Eliminates opposing traffic friction. Provides passing opportunities throughout the project corridor.	Provides adequate turn and storage lanes. Eliminates opposing traffic friction. Provides passing opportunities throughout the project corridor.





Table 2-3 – Alternatives Evaluation Matrix

Evaluation Parameters		No Build	TSM	Action Plan	Action Plan	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
		Existing Typical Section		(Two-Lane)	(Two-Lane - Modified)	(Two-Lane)	(Two-Lane with Passing Zone)	(Four-Lane) (Florida Intrastate Highway System)	(Four-Lane)	(Four-Lane) Rural/Suburban Typical Section
ENGINEERING	Capacity	No improvements and latent demand will not be served.	Minimal improvement due to turn lane and shoulder implementation.	Minimal improvement due to turn lane and shoulder implementation.	Minimal improvement due to turn lane and shoulder implementation.	Minimal improvement due to turn lane and shoulder implementation.	Minimal improvement due to turn lane and shoulder implementation.	Considerable improvements due to the additional through lanes in each direction.	Considerable improvements due to the additional through lanes in each direction.	Considerable improvements due to the additional through lanes in each direction.
	Level of Service (2040 Overall) ⁶	LOS "F"	LOS "F"	LOS "F"	LOS "F"	LOS "E"	LOS "E"	LOS "D"	LOS "D"	LOS "D"
	Access Management	No improvements.	Limited improvements, consolidate driveway connections whenever possible.	Limited improvements, consolidate driveway connections whenever possible.	Limited improvements, consolidate driveway connections whenever possible.	Considerable improvements with implementation of median and consolidation of driveways.	Considerable improvements with implementation of median and consolidation of driveways.	Considerable improvements with implementation of median and consolidation of driveways.	Considerable improvements with implementation of median and consolidation of driveways.	Considerable improvements with implementation of median and consolidation of driveways.
	Law Enforcement	Impeded by: No Shoulders, Traffic Congestion, No U-turn Access, and No Passing Zones.	Impeded by: Traffic Congestion, No U-turn Access, and No Passing Zones.	Impeded by: Traffic Congestion, No U-turn Access, and No Passing Zones.	Impeded by: Traffic Congestion, No U-turn Access, and No Passing Zones.	Impeded by: Traffic Congestion and No Passing Zones.	Impeded by: Traffic Congestion and Limited Passing Opportunities.	Unimpeded.	Unimpeded.	Unimpeded.
	Hurricane Evacuation	Hindered by: No Shoulders, Traffic Congestion, and No Passing Zones.	Hindered by: Traffic Congestion and No Passing Zones.	Hindered by: Traffic Congestion and No Passing Zones.	Hindered by: Traffic Congestion and No Passing Zones.	Hindered by: Traffic Congestion and No Passing Zones.	Hindered by: Traffic Congestion and Limited Passing Opportunities.	Improved by additional northbound lane.	Improved by additional northbound lane.	Improved by additional northbound lane.
	Drainage System	No improvements. Will continue to not meet water quality or quantity criteria.	No systemwide improvements. Will continue to not meet water quality or quantity criteria.	Minimal improvements with swales (some locations).	Minimal improvements with swales (some locations).	Considerable improvements with swales and French drains.	Considerable improvements with swales and French drains.	Considerable improvements with swales and French drains. Will impact C-102 Structure S-194.	Considerable improvements with swales and French drains.	Considerable improvements with swales and French drains.
	Multimodal Accommodations	None	None	Bike Path Equestrian Path	Bike Path Equestrian Path	Shared Use Path 5' Paved Shoulder	Shared Use Path 5' Paved Shoulder	Shared Use Path 5' Paved Shoulder	Shared Use Path 5' Paved Shoulder	Shared Use Path 5' Paved Shoulder
	Utility Impacts	None	None	Some relocation of power lines required.	Some relocation of power lines required.	Will require relocation of power lines. May provide opportunity for implementation of Florida Power and Light policy regarding underground placement.	Will require relocation of power lines. May provide opportunity for implementation of Florida Power and Light policy regarding underground placement.	Will require relocation of power lines. May provide opportunity for implementation of Florida Power and Light policy regarding underground placement.	Will require relocation of power lines. May provide opportunity for implementation of Florida Power and Light policy regarding underground placement.	Will require relocation of power lines. May provide opportunity for implementation of Florida Power and Light policy regarding underground placement.
	Maintenance of Traffic During Construction	N/A	Minimal temporary impacts at Maintenance of Traffic phase changes.	Moderate temporary impacts at Maintenance of Traffic phase changes.	Moderate temporary impacts at Maintenance of Traffic phase changes.	Substantial temporary impacts at Maintenance of Traffic phase changes.	Substantial temporary impacts at Maintenance of Traffic phase changes.	Substantial temporary impacts at Maintenance of Traffic phase changes.	Substantial temporary impacts at Maintenance of Traffic phase changes.	Substantial temporary impacts at Maintenance of Traffic phase changes.
	Roadway Maintenance	High due to continued deterioration of existing pavement condition	High due to continued deterioration of existing pavement condition	Medium due to unimproved roadway base and subbase	Medium due to unimproved roadway base and subbase	Low due to newly constructed roadway	Low due to newly constructed roadway	Low due to newly constructed roadway	Low due to newly constructed roadway	Low due to newly constructed roadway

⁶ See [Section 8.5.6](#) of the *Preliminary Engineering Report* for details and discussion of latent demand.





Table 2-3 – Alternatives Evaluation Matrix

Evaluation Parameters		No Build	TSM	Action Plan	Action Plan	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
		Existing Typical Section		(Two-Lane)	(Two-Lane - Modified)	(Two-Lane)	(Two-Lane with Passing Zone)	(Four-Lane) (Florida Intrastate Highway System)	(Four-Lane)	(Four-Lane) Rural/Suburban Typical Section
ENVIRONMENTAL	Wetland Impacts	None	None	None	None	None	None	None	None	None
	Water Quality	No treatment	No treatment	Some improvements due to limited swales	Some improvements due to limited swales	Considerable improvements are provided with new stormwater system	Considerable improvements are provided with new stormwater system	Considerable improvements are provided with new stormwater system	Considerable improvements are provided with new stormwater system	Considerable improvements are provided with new stormwater system
	Surface Water Impacts (Canals)	None	None	None	Unavailable	0.14 acres of impacts due to bridge widening over canals	0.14 acres of impacts due to bridge widening over canals	0.34 acres of impacts due to bridge widening over canals	0.21 acres of impacts due to bridge widening over canals	0.15 acres of impacts due to bridge widening over canals
	Contamination	None	None	High Risk - 4 sites Medium Risk - 7 sites Low Risk -1 sites	High Risk - 4 sites Medium Risk - 7 sites Low Risk -1 sites	High Risk - 4 sites Medium Risk - 7 sites Low Risk -1 sites	High Risk - 4 sites Medium Risk - 7 sites Low Risk -1 sites	High Risk - 4 sites Medium Risk - 7 sites Low Risk -1 sites	High Risk - 4 sites Medium Risk - 7 sites Low Risk -1 sites	High Risk - 4 sites Medium Risk - 7 sites Low Risk -1 sites
	Air Quality	Passed CO Florida 2012 screening analysis & county is designated as in attainment	Passed CO Florida 2012 screening analysis & county is designated as in attainment	Passed CO Florida 2012 screening analysis & county is designated as in attainment	Passed CO Florida 2012 screening analysis & county is designated as in attainment	Passed CO Florida 2012 screening analysis & county is designated as in attainment	Passed CO Florida 2012 screening analysis & county is designated as in attainment	Passed CO Florida 2012 screening analysis & county is designated as in attainment	Passed CO Florida 2012 screening analysis & county is designated as in attainment	Passed CO Florida 2012 screening analysis & county is designated as in attainment
	Noise Impacts	52.1 to 67.8 dB(A)	Traffic noise impacts are not anticipated to increase above existing noise range.	Traffic noise impacts are not anticipated to increase above existing noise range.	Traffic noise impacts are not anticipated to increase above existing noise range.	53.9 to 67.8 dB(A)	53.9 to 67.8 dB(A)	56.5 to 72.2 dB(A)	57.1 to 71.8 dB(A)	57.3 to 71.7 dB(A)
	Section 4(f)	None	None	None	None	<i>De minimis</i> finding for two Section 4(f) resources	<i>De minimis</i> finding for two Section 4(f) resources	<i>De minimis</i> finding for three Section 4(f) resources; individual evaluation for one Section 4(f) resource	<i>De minimis</i> finding for two Section 4(f) resources	<i>De minimis</i> finding for two Section 4(f) resources
	Section 106 Impacts	None	None	None	None	“No adverse effect “ for four NRHP-eligible resources	“No adverse effect “ for four NRHP-eligible resources	“No adverse effect “ for three NRHP-eligible resources; “Adverse effect” for one NRHP-eligible resource	“No adverse effect “ for four NRHP-eligible resources	“No adverse effect “ for four NRHP-eligible resources
	Environmentally Endangered Lands Impacts	None	None	None	None	EEL Property – 0.84 Acres	EEL Property – 0.84 Acres	EEL Property – 1.27 Acres	EEL Property – 1.02 Acres	EEL Property – 0.97 Acres
	Threatened and Endangered Species Impacts	None	None	No direct impacts - temporary impacts to foraging only during construction	No direct impacts - temporary impacts to foraging only during construction	No direct impacts to wildlife - temporary impacts to foraging only during construction. Direct impacts to state-listed and federal Candidate plant species in EEL property.	No direct impacts to wildlife - temporary impacts to foraging only during construction. Direct impacts to state-listed and federal Candidate plant species in EEL property.	No direct impacts to wildlife - temporary impacts to foraging only during construction. Direct impacts to state-listed and federal Candidate plant species in EEL property.	No direct impacts to wildlife - temporary impacts to foraging only during construction. Direct impacts to state-listed and federal Candidate plant species in EEL property.	No direct impacts to wildlife - temporary impacts to foraging only during construction. Direct impacts to state-listed and federal Candidate plant species in EEL property.
	Farmlands Impacts	None	None	Unavailable	Unavailable	26.42 Acres	29.02 Acres	60.41 Acres	39.50 Acres	27.89 Acres





Table 2-3 – Alternatives Evaluation Matrix

Evaluation Parameters		No Build	TSM	Action Plan	Action Plan	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
		Existing Typical Section		(Two-Lane)	(Two-Lane - Modified)	(Two-Lane)	(Two-Lane with Passing Zone)	(Four-Lane) (Florida Intrastate Highway System)	(Four-Lane)	(Four-Lane) Rural/Suburban Typical Section
SOCIO-ECONOMIC	Cultural Facilities and Community Services	None	None	Minimal impacts to parcel owned by one church due to right-of-way acquisition. No impacts to buildings or facilities.	Minimal impacts to parcel owned by one church due to right-of-way acquisition. No impacts to buildings or facilities.	Minimal impacts to parcels owned by two churches due to right-of-way acquisition. No impacts to buildings or facilities.	Minimal impacts to parcels owned by two churches due to right-of-way acquisition. No impacts to buildings or facilities.	Minimal impacts to parcels owned by three churches and one school due to right-of-way acquisition. No impacts to buildings or facilities.	Minimal impacts to parcels owned by two churches due to right-of-way acquisition. No impacts to buildings or facilities.	Minimal impacts to parcels owned by two churches due to right-of-way acquisition. No impacts to buildings or facilities.
	Compatibility with Agricultural Practices and Rural Character	Compatible. Rural typical section remains "as is"	Compatible. Rural typical section remains "as is"	Compatible. Rural typical section is proposed	Compatible. Rural typical section is proposed	Compatible. Rural typical section is proposed	Compatible. Rural typical section is proposed	Compatible. Rural typical section is proposed	Compatible. Rural typical section is proposed	Compatible. Rural typical section is proposed from SW 272 nd Street to SW 136 th Street. Suburban typical section has rural features on the outside.
	Transportation Plans Compatibility	Not compatible with the Miami-Dade County CDMP	Not compatible with the Miami-Dade County CDMP	Not compatible with the Miami-Dade County CDMP	Not compatible with the Miami-Dade County CDMP	Not compatible with the Miami-Dade County CDMP	Not compatible with the Miami-Dade County CDMP	Compatible with the Miami-Dade County CDMP	Compatible with the Miami-Dade County CDMP	Compatible with the Miami-Dade County CDMP
	Indirect Effects ⁷	None	None	None, no additional roadway capacity being provided	None, no additional roadway capacity being provided	None, no additional roadway capacity being provided	None, no additional roadway capacity being provided	The 2002 CDMP amendments are designed to limit any increased indirect effects from roadway widening.	The 2002 CDMP amendments are designed to limit any increased indirect effects from roadway widening.	The 2002 CDMP amendments are designed to limit any increased indirect effects from roadway widening.
	Landscaping/Aesthetics	None	None	None	None	Increased landscaping opportunities provided. No aesthetic impacts.	Increased landscaping opportunities provided. No aesthetic impacts.	Increased landscaping opportunities provided. Aesthetic impact from removal of mango trees in front of NRHP-eligible residence.	Increased landscaping opportunities provided. No aesthetic impacts.	Increased landscaping opportunities provided. No aesthetic impacts.
	Business and Residential Relocations	None	None	Unavailable	Unavailable	Residential - 4 Business - 3 Personal Property - 4	Residential - 5 Business - 4 Personal Property - 2	Residential - 10 Business - 6 Personal Property - 2	Residential - 5 Business - 5 Personal Property - 1	Residential - 5 Business - 4 Personal Property - 2
COST	Construction	\$0	Unavailable	Unavailable	Unavailable	\$61,628,904	\$63,338,797	\$75,726,746	\$71,241,546	\$70,658,711
	Right-of-Way	\$0	Unavailable	Unavailable	Unavailable	\$62,518,300	\$63,474,500	\$105,248,800	\$74,064,500	\$66,948,200
	Engineering (15%) & CEI (15%)	\$0	Unavailable	Unavailable	Unavailable	\$18,488,671	\$19,001,639	\$22,718,024	\$21,372,463	\$21,197,614
	Total	\$0	Unavailable	Unavailable	Unavailable	\$142,635,875	\$145,814,936	\$203,693,570	\$166,678,509	\$158,804,525

⁷ Refer to [Section 4.3.17](#) for additional details of the indirect effects discussion for this project.





2.6 SELECTION OF THE FDOT RECOMMENDED ALTERNATIVE

The FDOT recommended alternative for the Krome Avenue corridor is Alternative 5 (four-lane divided). This FDOT recommended alternative was based on the evaluation matrix and the analysis of several key evaluation parameters including: engineering considerations, environmental impacts, socio-economic impacts, and cost. Alternative 5 will meet the purpose and needs of the project and both alleviate the safety deficiencies and add the needed capacity to this roadway in Miami-Dade County. This alternative is the most prudent compared with the TSM Alternative, Action Plan Alternative, and build alternatives 1 through 4 for the following reasons:

1. The TSM Alternative does not address the needed safety between intersections, increase roadway capacity, improve access management, or provide adequate drainage. Therefore, further consideration of the TSM Alternative was eliminated from the analysis.
2. The Action Plan Alternatives, both “original” and “modified,” do not fulfill the needs of the project. Safety deficiencies will remain, future congestion will not be alleviated, and Krome Avenue will become even less effective as an evacuation route. Design deficiencies including median separation and access management requirements that will limit conflict points and enhance safety will continue to be unmet. The Action Plan Alternatives are not consistent with area growth management and transportation plans, which designate Krome Avenue as a four-lane roadway within the study limits. They will not accommodate the social and economic demands of a growing future Miami-Dade County. Therefore, both the “original” and the “modified” Action Plan Alternatives were eliminated from further consideration.
3. Both of the two-lane divided alternatives (Alternative 1 and Alternative 2) do not fulfill the needs of the project. Safety deficiencies will remain due to lack of continuous lane for passing around slow moving vehicles. Under these alternatives, in the future, roadway congestion during peak hours will increase. The congestion in the area may cause additional impacts to the roadway including excessive delay in travel time, large reduction of average travel speeds, and higher crash rates. In addition, Krome Avenue will become even less effective as an evacuation route for the area. Furthermore, both alternatives will not be consistent with area growth management and transportation plans, which designate Krome Avenue as a four-lane roadway within the study limits and will not accommodate the social and economic demands of a growing future Miami-Dade County. Therefore, Alternative 1 and Alternative 2 were eliminated from further consideration.
4. All of the four-lane divided alternatives (Alternative 3, Alternative 4, and Alternative 5) will provide enhanced safety, capacity, median separation (which is anticipated to reduce head-on and angle crashes between the intersections by limiting the conflict points along the corridor within the study limits) and drainage. Four-lane divided alternatives will also provide a second northbound lane which will enhance the facility as an evacuation route. In addition, these alternatives are consistent with the area growth management and





transportation plans, and will accommodate future social and economic demands. However, the FHWA has determined that Alternative 3 would cause an adverse impact [under both Section 106 and Section 4(f)] to the Howard Schaff Residence/27450 SW 177th Avenue (8DA9674) due to removal of the large mango trees in front of the residence, while Alternative 4 and Alternative 5 will not require removal of the mango trees; therefore Alternative 3 was eliminated from further consideration.

5. The determining factor between Alternative 4 and Alternative 5 is the required right-of-way width for implementation of each alternative. Reducing the required right-of-way footprint will reduce impacts to cultural and historical resources, surface waters, environmentally endangered lands, businesses, farmlands, noise, and cost. Therefore, Alternative 5, with the least right-of-way width, is the FDOT recommended alternative.

At this point in time, based on previous public input, early agency coordination, engineering information and environmental studies, which are currently available for public review, Alternative 5 is currently considered the recommended alternative by FDOT. The FHWA is also considering Alternative 5 as the preferred alternative. However, the FHWA will make the final determination on a preferred alternative once alternative impacts and agency comments on the DEIS and public input resulting from the public hearing have been fully evaluated. Unless new information is brought forward through the public and agency comment period, the FHWA intends to select Alternative 5 as the preferred alternative.





3.0 AFFECTED ENVIRONMENT

3.1 SOCIAL AND ECONOMIC

3.1.1 Population, Community Growth, and Economic Characteristics

At the beginning of the 21st Century Florida was one of the smallest states in the country with a population of approximately one-half million. By the end of the century the state's population had grown to 15,982,378 million people. With growth rates exceeding 20% per decade, the state had become the fourth largest in the nation. Florida's growth continued during the 1990s and 2000s, trailing only California and Texas. Despite the economic downturn of the late 2000s, the state's rapid growth has continued. According to the American Community Survey (2011) the State of Florida is the ninth fastest growing state, adding 256,000 new residents between April 1, 2010 and July 1, 2011, ranking the state third behind Texas and California in added total population. The state ranks ninth in terms of percentage growth.

Miami-Dade County has long been the largest and one of the fastest growing counties in Florida, a trend that started in 1896 when the Flagler East Coast Railroad reached the city. Population growth accelerated after the end World War II and continued through the new millennium. According to the 2010 U.S. Census, Miami-Dade County's population was 2,496,435, which was a 10.8% increase over the 2000 population of 2,253,779. Per the EAR projected population for 2030 is 3,178,164, which represents a 27 percent increase over the 2010 population. The population growth in Miami-Dade County can be attributed to tourism-related activities, access to international markets, a second home market, and the overall economic growth of southeast Florida.

Data from the 2010 U.S. Census was utilized to assess the social and economic characteristics of the areas adjacent to the project. The smallest census geographic entity is a census block which generally encompasses a small geographic area. Readily available and geospatially accessible data for census blocks is generally limited to total population and a few demographic categories including age, gender, race, ethnicity, number of households and housing data. Additional information is available for Census Tracts, including school enrollment, and house values. The data utilized in this report originated from data collected by the U.S. Census Bureau and available from the agency's website, the Florida Geographic Data Library or Miami-Dade County. Census block data was obtained for census blocks wholly or partially located within 0.25-mile from the project corridor. Census tract data was obtained from those tracts that intersect the project corridor. For the purposes for this analysis, the project area has been spatially defined as those areas within the census blocks which are wholly or partially located within 0.25-mile from the project corridor.

Between 2000 and 2010 the population within the project area grew at a 20.64 percent rate and was higher than that of the census tracts, the county, and the state. The areas within a quarter mile from the corridor include areas of unincorporated Miami-Dade County as well as the City of Homestead which have seen significant growth and development during the last decade. Although much of the area is outside of the UDB, continued growth is anticipated under existing





zoning and land use in order to accommodate the influx of population into the county, most of which has already been developed.

According to the 2010 U.S. Census Bureau, the racial breakdown of Miami-Dade County is as follows: White – 73.8 percent (including Hispanic or Latino), Black or African American – 18.9 percent, Asian – 1.5 percent, American Indian and Alaska Native – 0.2 percent, Native Hawaiian and other Pacific Islander – less than 0.1 percent, Other – 3.2 percent, and Two or More Races – 2.4 percent. Miami-Dade is a minority majority county, where ethnic or racial majorities account for more than fifty percent of the population. According to the 2010 U.S. Census, approximately 65 percent of the population in the county identifies itself as Hispanic or Latino, and 18.9 percent as Black or African American (non-Hispanic). The project area has a similar proportion of ethnic minority populations (60%) as Miami-Dade County (65%). As previously mentioned, the ethnic minority population in Miami-Dade is significantly greater than the state's (14.2%). Ethnic minorities within the census tracts that intersect the corridor are higher than those of the county, at 83 percent.

The median age is defined as the age that divides a population into two numerically equal groups; that is, half the people are younger than this age and half are older. It is widely accepted as a single index that summarizes the age distribution of a population. Median age for the population within the project area is 44.1, and slightly higher than the overall median age for Miami-Dade County (38.2), and the state of Florida (40.7). However, the percentage of population older than 65 is lower (13.2%) than that of the County (14.1%) and the State (17.3%).

According to the 2010 U.S. Census Bureau, Miami-Dade County has a median household income of \$43,605. The project area has a median household income of \$64,453, which is significantly higher than the state and county median household income. The project area has about ten percent of the population living below the poverty level. The project area has a lower proportion of low-income populations than Miami-Dade County and the state of Florida (13.8 percent). *Table 3-1*, below, summarizes the data sets collected.

***Table 3-1 – Population Characteristics for the State of Florida,
Miami-Dade County, and the Project Corridor***

Statistic	Florida	Miami-Dade County	Census Tracts Along the Project Corridor	Census Blocks Along the Project Corridor
Population (2000) ⁴	15,982,378	2,253,779	42,060	1996
Population (2010) ¹	18,801,310	2,496,435	49,323	2408
Percent Increase in Population (2000-2010)	17.6%	10.8%	17.26%	20.64%
Projected Population 2020 (Medium Projection) ³	21,326,800	2,722,900	n/a	n/a
Projected Population (2030) ³	21,021,643	2,959,348	n/a	n/a
Percent Increase in Population 2010-2020	13%	9%	n/a	n/a
Median Age (2010) ¹	40.7	38.2	36.1	44.1
Percent of Population 65 years old or older (2010) ¹	17.3%	14.1%	9.26%	13.2%
Race – Non-White ⁴	3,517,349	654,548	9,195	275
Ethnic Minorities - Hispanic	2,682,715	1,623,859	41,260	1,437
Households (2000)	6,337,929	776,906	12,615	639
Households (2010)	7,420,802	867,352	14,375	767





Table 3-1 – Population Characteristics for the State of Florida, Miami-Dade County, and the Project Corridor

Statistic	Florida	Miami-Dade County	Census Tracts Along the Project Corridor	Census Blocks Along the Project Corridor
Projected Households (2030)	n/a	1,068,664	n/a	n/a
Persons per Household (2006-2010) ²	2.53	2.88	3.43	3.13
Median Household Income (2006-2010) ²	\$47,661	\$43,605	\$64,453	n/a
Median Housing Value (2006-2010) ¹	\$269,600	\$205,600	\$360,335	n/a
School Enrollment (2000) ⁴	3,933,279	643,727	n/a	n/a
School Enrollment (2010) ²	4,682,575	629,365	15,092	n/a
Labor Force (2000) ^{4*}	77.2%	75.2%	68.7%	74.1%
Labor Force (2010) ¹	78.3%	78.1%	76.3%	77.7%

Sources: Florida Statistical Abstract 2004; ¹2010 U.S. Census; ²American Community Survey (2006-2010); ³ Florida Population Study; ⁴2000 U.S. Census 2000, Bureau of Economic and Business Research 2011. *Labor force is percentage of population 18 and older.

Table 3-2 summarizes the socioeconomic data from each of the Traffic Analysis Zones within one-mile of the corridor as it compares to similar statistics for Miami-Dade County.

Table 3-2 – Socioeconomic Information from Traffic Analysis Zones Data

	2004	2010	2030
Population	41,874	46,907	67,561
Percent Change 2004-2010		12.02%	
Percent Change 2010-2030		44.03%	
Percent Change 2004-2030		61.34%	
Households	13,967	15,470	22,128
Percent Change 2004-2010		10.76%	
Percent Change 2010-2030		43.04%	
Percent Change 2004-2030		58.43%	
School Enrollment	7,442	8,912	10,837
Percent Change 2004-2010		19.75%	
Percent Change 2010-2030		21.60%	
Percent Change 2004-2030		45.62%	
Workers	22,795	25,466	36,709
Percent Change 2004-2010		11.72%	
Percent Change 2010-2030		44.15%	
Percent Change 2004-2030		61.04%	





3.1.2 Community Services

Community service facilities provide a gathering place for adjacent neighborhood and community members, as well as serving the needs of the surrounding areas. For the purpose of this study, community facilities include churches and other religious institutions; public and private schools; and public buildings and facilities such as fire stations, libraries, medical centers, and cemeteries. The community service facilities discussed below are located within or adjacent to the Krome Avenue project study area. Recreational areas and parklands are described in [Section 3.2.3](#).

3.1.2.1 Churches and Religious Institutions

There are three churches located along the study corridor: Redland Church of the Nazarene (22755 SW 177th Avenue), Church of Christ (17700 SW 280th Street), and First Baptist Church of Homestead (29050 SW 177th Avenue). Please refer to [Figure 3-1](#) for a map showing the locations of these facilities in relation to the Krome Avenue study corridor.

3.1.2.2 Schools

Several schools that serve the area exist within close proximity of the study corridor, including 12 elementary schools, five middle schools, one high school, and two private schools. Please refer to [Figure 3-2](#) for a map showing the locations of these facilities in relation to the Krome Avenue study corridor.

Elementary Schools

- Avocado Elementary (3255 SW 6th Street)
- Bowman Foster Ashe Elementary (6601 SW 152nd Avenue)
- Christina M. Eve Elementary (16251 SW 99 Street)
- Dante B Fascell Elementary (15625 SW 80th Street)
- Gilbert L. Porter Elementary (15851 SW 112th Street)
- Jack David Gordon Elementary (1440 Country Walk Drive)
- Jane S. Roberts Center (14850 SW Cottonwood Circle)
- Leisure City K-8 Center – Elementary School (14940 SW 288th Street)
- Norma Butler Bossard Elementary (15950 SW 144th Street)
- Oliver Hoover Elementary (9050 Hammocks Boulevard)
- Redland Elementary (24501 SW 162nd Avenue)
- Redondo Elementary (18480 SW 304th Street)





Middle Schools

- Herbert A. Ammons Magnet Middle School (17990 SW 142nd Avenue)
- Jorge Mas Canosa Middle (15735 SW 144th Street)
- Leisure City K-8 Center – Middle School (14940 SW 288th Street)
- Redland Middle (16001 SW 248th Street)
- South Dade Middle (29100 SW 194th Avenue)

Senior High Schools

- South Dade Senior High School (28401 SW 167th Avenue)

Private Schools

- Colonial Christian School (17105 SW 296th Street)
- Redland Christian Academy (17700 SW 280th Street)

3.1.2.3 Fire and Police Protection

No police stations are located within the study area. Three Miami-Dade County fire rescue stations are located within the study area, one of which – Redland Fire Station – is located directly adjacent to the study corridor:

- Redland Fire Station (17605 SW 248th Street)
- Richmond Fire Station (13390 SW 152nd Street)
- Modello Fire Station (15890 SW 288th Street)

Please refer to **Figure 3-3** for a map showing the locations of these facilities in relation to the Krome Avenue study corridor.

3.1.2.4 Medical and Emergency Operation Facilities

Homestead Hospital (part of the Baptist Health South Florida System) is located southeast of the study corridor at 975 Baptist Way and has a 120-bed capacity. Please refer to **Figure 3-4** for a map showing the location of this facility in relation to the Krome Avenue study corridor.

3.1.2.5 Other Public Buildings and Facilities

Four Miami-Dade County libraries are located in proximity of the study area:

- Country Walk Branch Library (15433 SW 137th Avenue)
- South Dade Regional Library (10750 SW 211th Avenue)
- Naranja Branch Library (27056-60 South Dixie Highway)
- Homestead Branch Library (700 North Homestead Boulevard)

Please refer to **Figure 3-5** for a map showing the locations of these facilities in relation to the Krome Avenue study corridor.



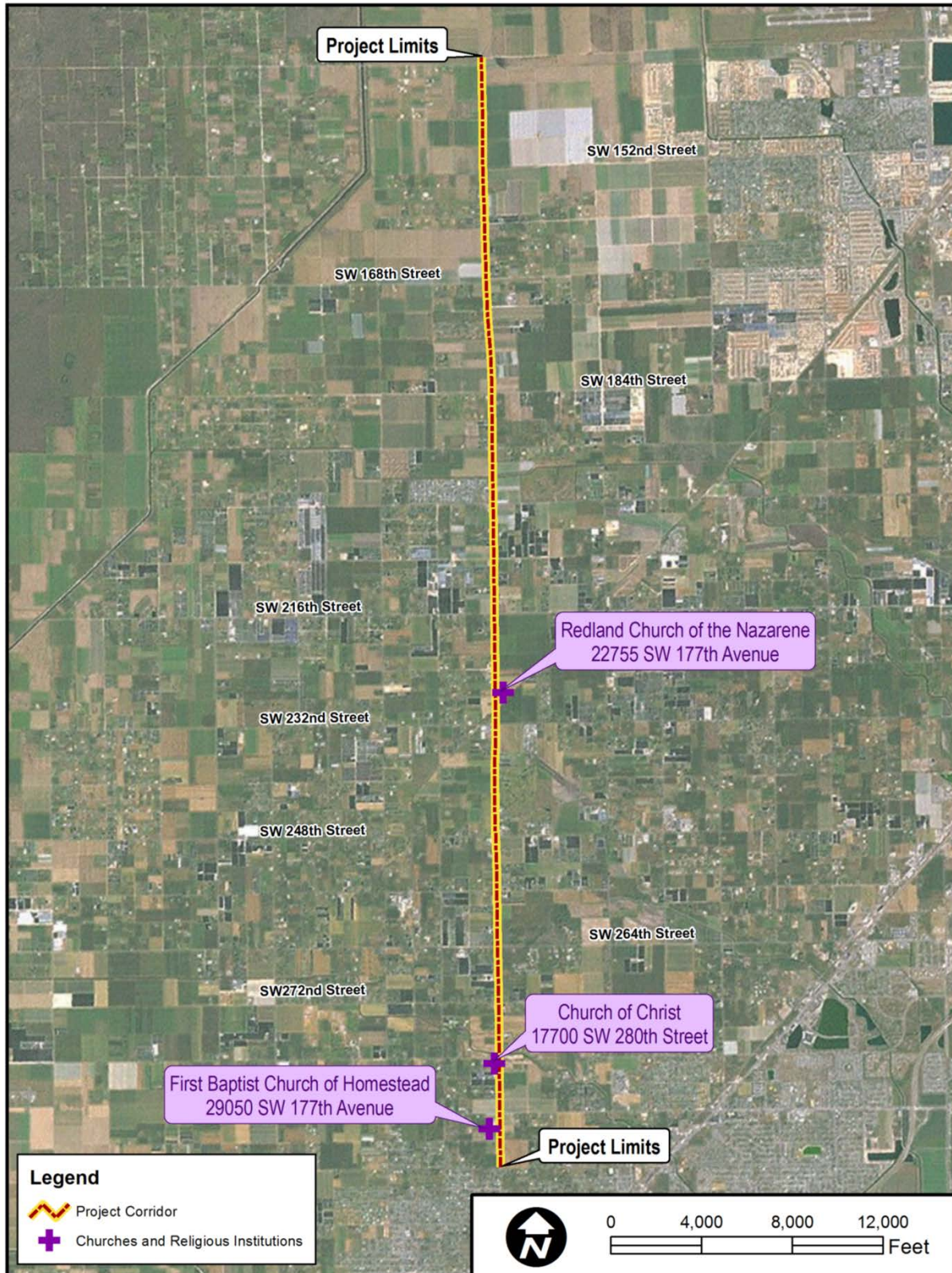


Figure 3-1 – Churches and Religious Institutions



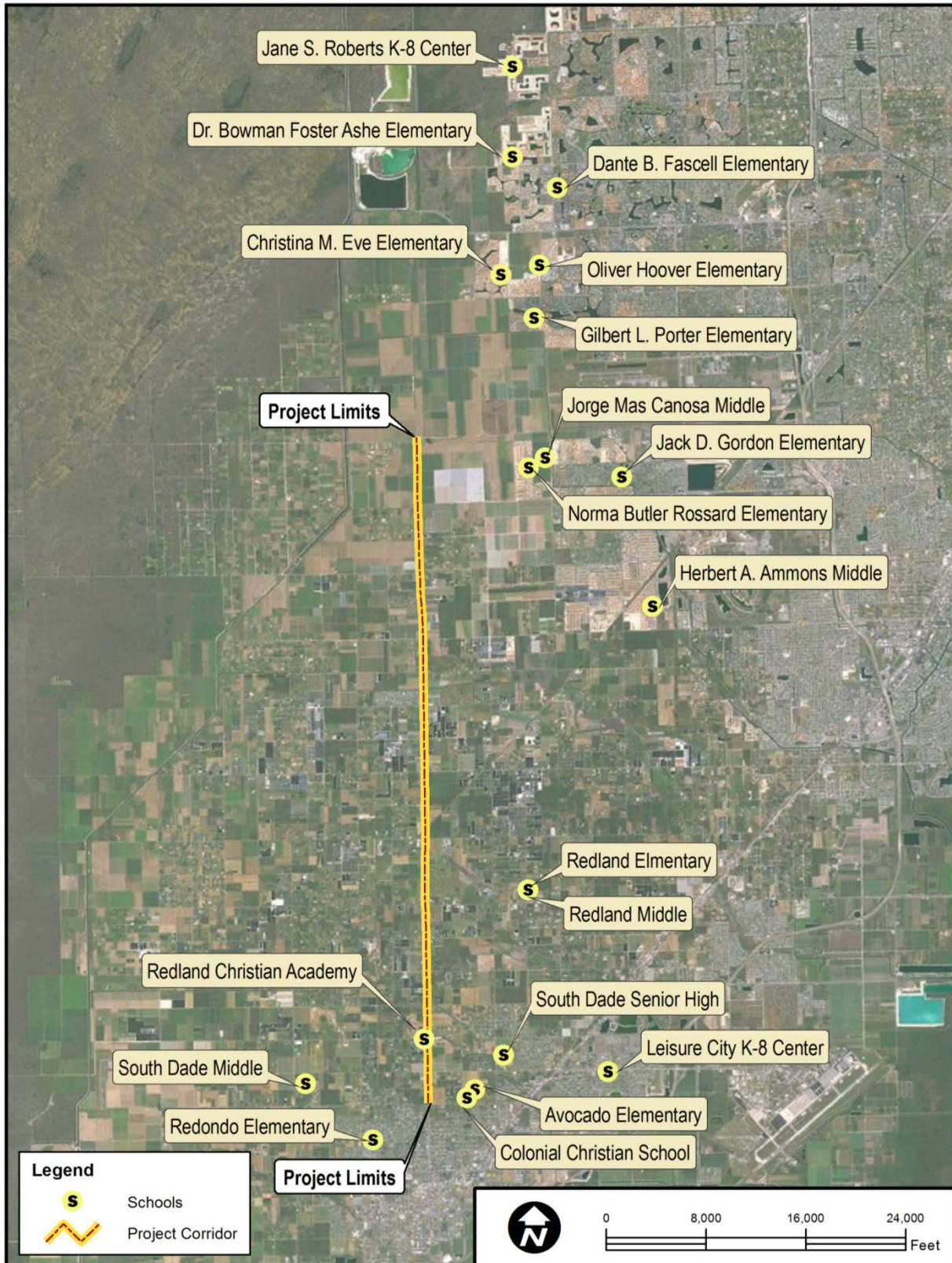


Figure 3-2 – Schools



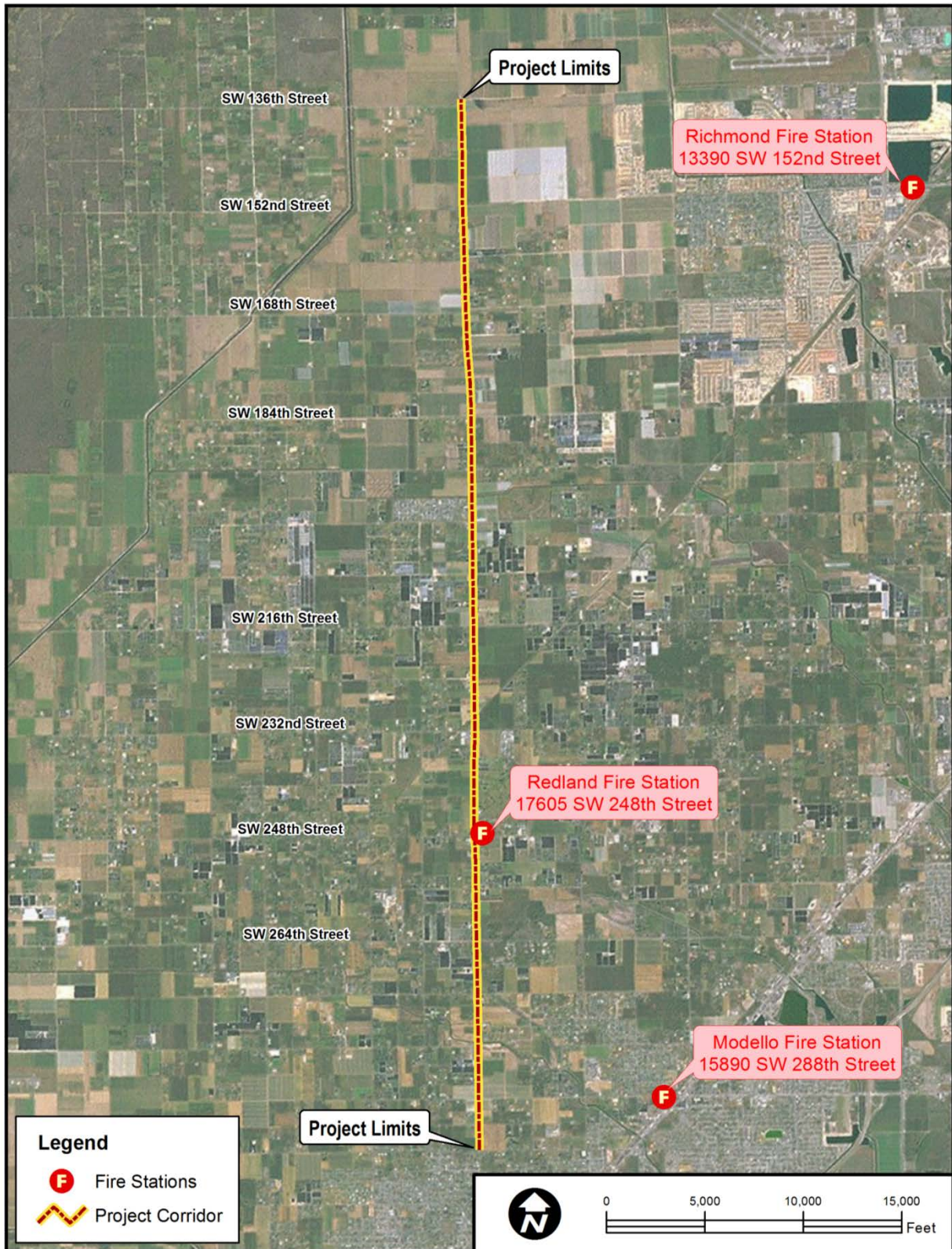


Figure 3-3 – Fire Stations



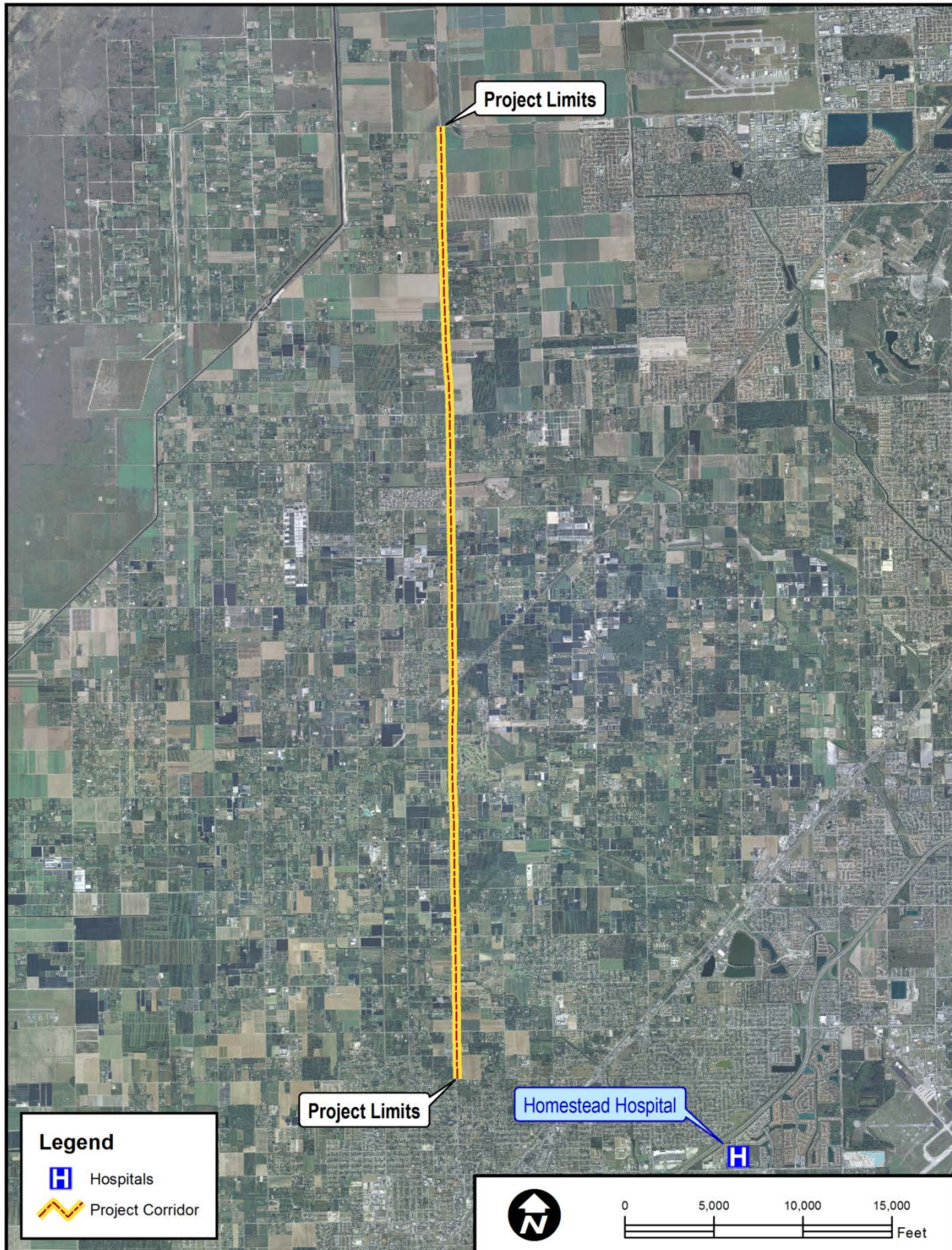


Figure 3-4 – Hospitals



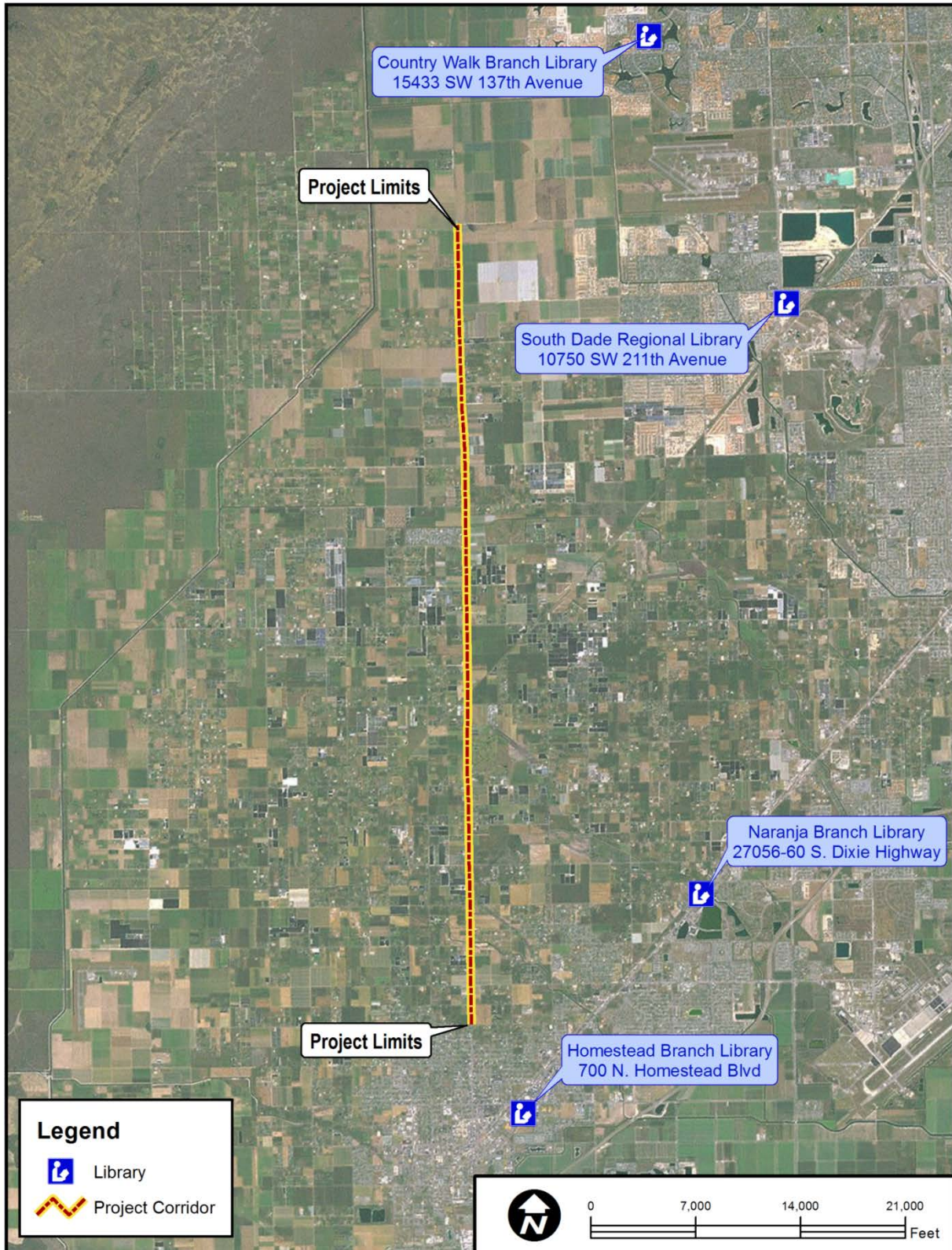


Figure 3-5 – Libraries





3.1.3 Land Use

The proposed project corridor traverses a farming and residential community. The agricultural land uses include numerous agricultural fields and herbaceous, ornamental, and fruit tree nurseries. The agricultural fields include seasonal "self-pick" fields with fruit/vegetable stands. There are many nurseries found scattered along much of the southern stretch of Krome Avenue; most are open to the public with direct access onto Krome Avenue. The agricultural land use carries a residential density of one unit per five acres. A Land Use map is provided as *Figure 3-6*.

From SW 296th Street to SW 288th Street, residential estate densities of one to 2.5 dwelling units per acre occur on both sides of the corridor. From SW 288th Street to SW 272nd Street, residential estates occur only on the east side of Krome Avenue, while agricultural land use occurs on the west side. North of SW 272nd Street, agriculture dominates land use along Krome Avenue, with the exception of some intersections that are designated business and office land uses. The intersections on Krome Avenue that contain the office and business land uses are found at intersections of SW 272nd Street, SW 248th Street, SW 232nd Street, and SW 200th Street on the corridor.

There are nine gas stations on the corridor. Along this southern portion of the Krome corridor, between SW 288th Street and SW 184th Street, three establishments were found to have active horse hitching posts, which show evidence of the historically preserved rural character of Krome Avenue. Other land uses include an airplane glider facility on SW 168th Street and Krome Avenue, three churches, and one religious school found along the corridor.

The Dade County Archipelago Florida Forever Project helps fund the public acquisition for conservation of privately-owned subtropical pinelands and hardwood hammocks that remain in Miami-Dade County. These sites, including the Miami Rockridge Pinelands (including Ingram Pineland) and the Owaissa Bauer Pinelands (including the Owaissa Bauer Pineland Preserve Addition No. 1, 2, and 3 sites) are administered through the Miami-Dade County DRER EMRD EEL Program. One of these ecologically important parcels, the Owaissa Bauer Pineland Preserve Addition No. 1, exists along the study corridor in the southeast quadrant of the intersection of Krome Avenue and SW 264th Street. The Owaissa Bauer Pineland Preserve Addition No. 2 and 3 parcels are located along SW 264th Street approximately 700 feet east (south of SW 264th Street) and 3,300 feet northeast (north of SW 264th Street) of the intersection of Krome Avenue and SW 264th Street, respectively. Additionally, the Miami Rockridge Pinelands are located along the south side of SW 288th Street approximately 5,000 feet east of the Krome Avenue Project corridor. Camp Owaissa Bauer (including the Everglades Archery Range) is located along the north side of SW 264th Street approximately 600 feet east of the Krome Avenue study corridor. This camp is administered through the MDPROS.

Two unimproved SFWMD canal maintenance access roads bisect Krome Avenue within the study corridor. One of the maintenance access roads runs parallel to the SFWMD C-102/Princeton Canal, which crosses Krome Avenue at approximately SW 196th Street, while the other maintenance access road runs parallel to the SFWMD C-103/Mowry Canal, which crosses Krome Avenue just north of SW 280th Street. These roads are currently mowed/maintained by





the SFWMD for maintenance access to the adjacent canals. The Miami-Dade Open Space Master Plan Vision Map (dated November 11, 2009) shows both of these maintenance access roads, as potential future “greenways” on the Miami-Dade Open Space Master Plan Vision Map. However, the SFWMD, the owner of these canal maintenance access roads, has no plans at this time for development of these canal maintenance access roads for trail use. The Redland Golf and Country Club is located adjacent to the eastern Krome Avenue right-of-way, approximately 950 feet north of SW 248th Street. The Florida Audubon Society privately owns a two-acre property, which is located on the west side of the southern end of the Krome Avenue study corridor just north of SW 296th Street. This site is not designated or classified as a park by federal, state, or local agencies; however, this privately-owned unmarked parcel is recognized by the Florida Audubon Society, the land owner, as a bird watching location. The site contains planted rockland and coastal upland hammock species used to attract birds and butterflies to the area for viewing.



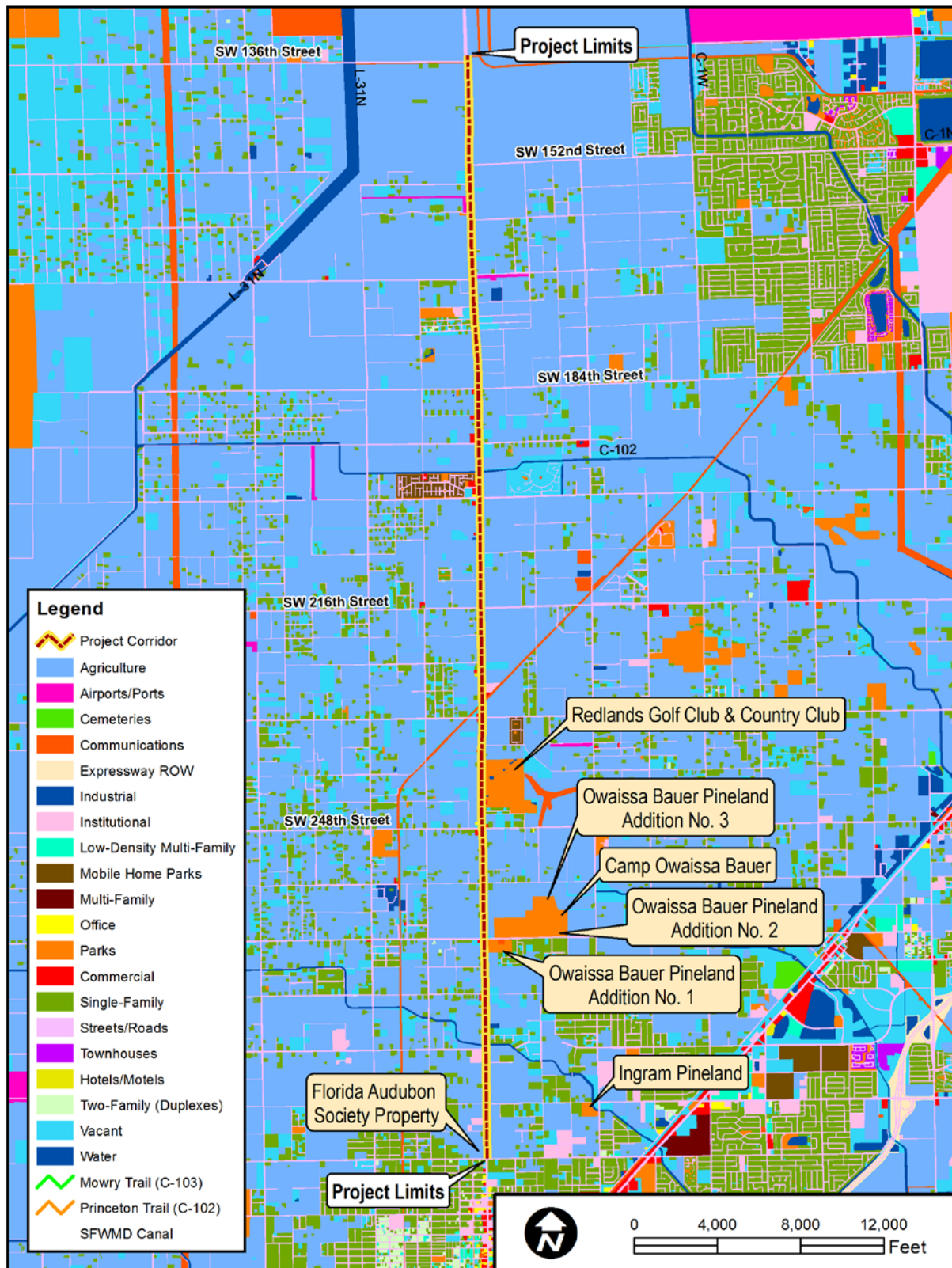


Figure 3-6 – Land Use Map





3.1.4 Utilities and Railroads

The following utility companies and governmental utility departments have facilities located within or in close proximity to the study corridor. The crossroads and stationing described below are estimated locations.

3.1.4.1 Utilities

Homestead Energy Services

An overhead three-phase line exists along the east side of Krome Avenue's existing right-of-way line beginning at SW 296th Street to SW 280th Street. The same line runs east along the south side of SW 296th Street, crosses Krome Avenue towards the west along the south side of SW 292nd Street, and crosses Krome Avenue at three locations south and north of SW 256th Street towards the east. Also, the same line runs along the south side of SW 288th Street and SW 282nd Street crossing Krome Avenue. This line ends at SW 280th Street turning west along SW 280th Street.

Florida Power & Light Company

A distribution overhead electrical facility (23 KV) exists along the east side of Krome Avenue from SW 278th Street to SW 248th Street. The same line crosses at SW 248th Street and runs along the west side from SW 248th Street to SW 236th Street. The same line crosses at SW 236th Street and runs along the east side up to SW 216th Street. The same line crosses at SW 236th Street and runs along the west side up to SW 136th Street. Multiple overhead crossings exist along this section of the corridor:

- 41-OE 23 KV
- 21-OE 240 V
- 4-OE 120 V
- 7-Span Guys

AT&T (formerly BellSouth)

An aerial cable/fiber line runs along the east side right-of-way line from SW 296th Street to SW 248th Street. An aerial cable/fiber line and a buried cable line run parallel along the west side of the right-of-way line from SW 248th Street to SW 236th Street. The same lines cross at SW 236th Street and run along the east side up to SW 216th Street. An aerial cable/fiber runs along the west side of the right-of-way line from SW 216th Street thru the end of the project. A Buried Cable line runs along the east side of the right-of-way line from SW 200th Street to SW 184th Street. Multiple overhead and buried line crossings exist along this section of the corridor:

- 1 – BellSouth Telecommunications HH
- 11 – Buried Cables
- 31 – Aerial Cable/Fiber Lines





Miami-Dade Water and Sewer Department

A 16-inch ductile iron pipe water main exists along the east side of Krome Avenue from SW 278th Street to SW 272nd Street and along SW 272nd Street extending from Krome Avenue to approximately 680 feet to the east.

3.1.4.2 Lighting

Street lighting is provided intermittently at improved intersections (SW 288th Street, SW 256th Street, SW 200th Street, SW 184th Street, and SW 136th Street). These intersections were improved between approximately 2003 and 2007. Overhead lighting consists of conventional cobra head light fixtures mounted on aluminum poles or attached to utility poles.

3.1.4.3 Railroads

CSX Transportation Railroad

A CSX Transportation, Inc. railroad crossing (FDOT Crossing Number 631137L and Railroad Milepost 1060.53) is located within the project limits. The railroad crosses over Krome Avenue just north of SW 232nd Street (Silver Palm Drive) (see [Figure 3-7](#)). This is an active crossing and there is no abandonment plan for the crossing. The crossing belongs to the southern segment of the CSX Transportation Homestead Branch and there are no fixed schedules for freight and passenger train operations. Per coordination with CSX, there is approximately one train per day crossing at this location traveling at a speed limit of ten miles per hour. The control devices involve cantilevered flashing lights, mast mounted flashing lights, gates, pavement markings for railroad advance warning and W-10 signs for both roadway travel directions. Due to its status as a NRHP-eligible resource, this railroad crossing is also discussed in [Section 3.2.1.2](#).



Figure 3-7 – CSX Railroad Crossing North of 232nd Street





3.2 CULTURAL AND HISTORICAL RESOURCES

3.2.1 Archeological and Historic Resources

A *Cultural Resource Assessment Survey* (CRAS) was completed in 2005 for this project in accordance with the procedures contained in 36 CFR Part 800 and in accordance with the FDOT *PD&E Manual*, Part 2, Chapter 12 – Archeological and Historical Resources (dated January 12, 1999). The objective was to document the historic and archeological resources within the proposed project area of potential effect and assess them in terms of their eligibility for listing in the National Register of Historic Places (NRHP) according to the criteria set forth in 36 CFR Section 60.4. Background research and a field survey were also coordinated with the SHPO. An addendum to the CRAS was prepared in 2012. The objectives of the addendum were to identify any additional cultural resources within the proposed area of potential effect which were not considered historic at the time of the previous CRAS, assess them in terms of their eligibility for listing in the NRHP, and examine the potential effects of the project. The following sections discuss the existing cultural resources identified within the Krome Avenue project study area. For additional information regarding cultural and historical resources, please refer to the CRAS completed for this project, which is on file at the FDOT District Six offices in Miami, Florida and is incorporated by reference.

3.2.1.1 Archeological Resources

A total of six shovel tests were excavated in the project area during preparation of the 2005 CRAS, which were placed judgmentally in areas of low archeological site potential or areas of extant hammock vegetation. Other portions of the project area were not subjected to shovel-testing due to the presence of fill, buried utilities, buildings, and roads in the study corridor. However, the entire project area was subjected to a windshield and pedestrian survey. No precontact or historic period archeological sites were encountered during any of these investigations. During the CRAS Addendum prepared in 2012, an updated search of the Florida Master Site File and Miami-Dade County local data was conducted, which identified no previously recorded archeological sites within one mile of the project area of potential effect (no archeological resources were identified during the 2012 CRAS Addendum).

3.2.1.2 Historic Resources

The CRAS resulted in the identification of five previously recorded historic resources (8DA2764, 8DA2765, 8DA2818, 8DA6762, and 8DA9603), one golf course (8DA10051), and 27 newly recorded historic buildings (8DA9669-8DA9672, 8DA9674-96). Florida Master Site File forms were prepared for the identified historic resources visible from the right-of-way. Four historic resources were not visible or accessible from the public right-of-way; therefore, Florida Master Site File forms were not completed for these resources. Of the identified resources, two buildings, the Howard Schaff Residence (8DA9674) and Clarence J. Parman Residence (8DA9675) and one golf course, the Redland Golf Course (8DA10051), were determined eligible for listing in the NRHP on an individual basis. The remaining 30 resources were determined ineligible for listing in the NRHP, either individually or as part of a historic district. In a letter dated August 1, 2005, the SHPO concurred with the findings of the survey (see [Appendix G](#)). The SHPO





noted that they could not determine the NRHP eligibility of the resources at 16405, 17101, 20345, and 26430 SW 177th Avenue as they were inaccessible to the surveyors⁸.

The CRAS Addendum prepared in 2012 resulted in the identification of 11 newly recorded historic resources within the project area of potential effect (8DA10753, 8DA12347-8DA12356). In addition, Florida Master Site File forms were updated for six of the resources documented during the 2005 study, as they have undergone alterations since the time of their previous documentation (8DA06760, 8DA09677, 8DA09678, 8DA09682, 8DA09684, and 8DA9690). Florida Master Site File forms were prepared and updated only for the identified historic resources visible from the right-of-way. The historic resources located at 27101, 26430, 20901, and 20345 SW 177th Avenue were not documented during this study as they were not visible from the right-of-way⁹. However, upon review of aerial photographs of these resources, each site has large setbacks; therefore, these sites will not be impacted by any of the proposed alternatives. One of the newly recorded resources, the Seaboard Air Line (CSX) Railroad (8DA10753), is considered eligible for listing in the NRHP. The remaining ten historic resources are considered ineligible for listing in the National Register.

3.2.2 Section 4(f) Resources

There are ten sites that were considered for potential Section 4(f) involvement on the project. These properties are located either adjacent to or within close proximity to the Krome Avenue study corridor. A map showing the potential Section 4(f) resources is provided as [Figure 3-8](#).

The following Section 4(f) properties may be protected under the park or wildlife refuge category:

- Camp Owaissa Bauer (including the Everglades Archery Range) (also discussed in [Section 3.2.3](#))
- Owaissa Bauer Pinelands:
 - Owaissa Bauer Pineland Preserve Addition No. 1 (also discussed in [Section 3.3.12.5](#))
 - Owaissa Bauer Pineland Preserve Addition No. 2 (also discussed in [Section 3.3.12.3](#))
 - Owaissa Bauer Pineland Preserve Addition No. 3 (also discussed in [Section 3.3.12.3](#))

⁸ The sites located at 16405 and 17101 SW 177th Avenue were not visible from the right-of-way during the survey conducted for the 2005 CRAS. However, Florida Master Site File forms were prepared for both of these sites and included in the CRAS. During the survey conducted for the 2012 CRAS Addendum, both of these sites were visible from the right-of-way (potentially due to a reduction in vegetation between the right-of-way and the resource). The resources and their significance were determined to have not changed since their documentation for the 2005 CRAS; therefore, updated Florida Master Site File forms were not prepared during the survey.

⁹ The sites located at 27101 and 20901 were not evaluated as part of the 2005 CRAS. During the survey conducted for the 2012 CRAS Addendum, both of these resources were not visible from the right-of-way, and therefore not evaluated.





- SFWMD canal access roads along the C-102/Princeton Canal and C-103/Mowry Canal¹⁰ (also discussed in [Section 3.3.1](#))

In addition to the above sites, the following Section 4(f) properties may be protected under the historic resources category:

- Howard Schaff Residence (8DA9674) (also discussed in [Section 3.2.1.2](#))
- Clarence J. Parman Residence (8DA9675) (also discussed in [Section 3.2.1.2](#))
- Redland Golf Course (8DA10051) (also discussed in [Section 3.2.1.2](#) and [Section 3.2.3](#))
- Seaboard Air Line (CSX) Railroad (8DA10753) (also discussed in [Section 3.1.6.3](#) and [Section 3.2.1.2](#))

¹⁰ The Miami-Dade Open Space Master Plan Vision Map (dated November 11, 2009) shows both of these maintenance access roads, as potential future “greenways” on the Miami-Dade Open Space Master Plan Vision Map; thus, they were considered for evaluation as potential Section 4(f) resources.



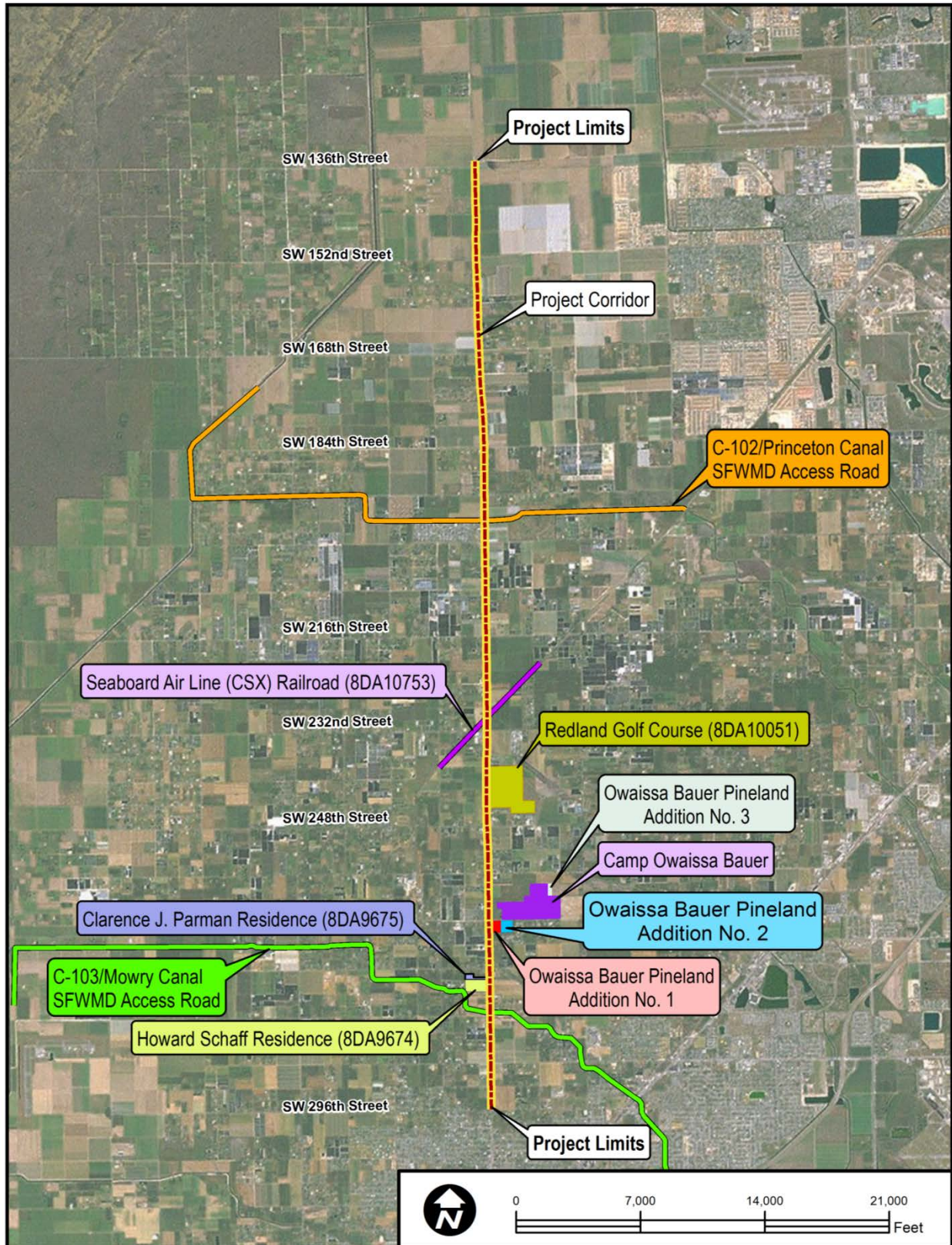


Figure 3-8 – Potential Section 4(f) Resources





3.2.3 Recreational and Parklands

While there are no designated public parks located directly on Krome Avenue, there are Miami-Dade County neighborhood and local parks in the vicinity of the study corridor. A map showing the Recreational and Parklands sites is provided as *Figure 3-9*.

Local Parks

Oak Creek Park is located approximately 2.2 miles east of the study corridor at the intersection SW 144th Street and SW 155th Avenue and has a playground and sport courts. Kings Grant Park is located approximately 2.5 miles east of the study corridor at the intersection of SW 160th Street and SW 152nd Avenue and has a playground. The Redland Fruit and Spice Park is a unique park that has over 500 types of plants that produce spices, tropical fruits and nuts. This park, which is located approximately 3,900 feet west of the study corridor at 24801 SW 187th Avenue, has an educational element as well as hosting an annual art festival. These parks contain a mixture of pineland and mixed hardwood plant species.

Camp Owaissa Bauer (including the Everglades Archery Range)

Camp Owaissa Bauer (including the Everglades Archery Range) is located along the north side of SW 264th Street approximately 600 feet east of the Krome Avenue study corridor. This camp is administered through the MDPROS and is designed for group camping. It has buildings and facilities to accommodate a total of 160 campers for overnight and extended period camping. The camp is available to organized groups up to one year in advance. This facility also has several amenities in addition to camping, including cabins, a shooting range, a pool, multipurpose fields, a volleyball court, basketball courts, a campfire circle, and nature trails. Several native pineland and mixed hardwood upland plants are located on this site.

SFWMD Canal Access Roads

Two unimproved SFWMD canal maintenance access roads bisect Krome Avenue within the study limits. One runs parallel to the C-103/Mowry Canal, just north of SW 280th Street. The second runs parallel to the C-102/Princeton Canal, at approximately SW 196th Street. The Miami-Dade Open Space Master Plan Vision Map (dated November 11, 2009) shows both of these maintenance access roads, as potential future “greenways” in the Miami-Dade County Parks and Open Space Master Plan. However, the SFWMD, the owner of these canal maintenance access roads, has no plans at this time for development of these canal maintenance access roads for trail use. These access roads are also discussed in *Section 3.3.1*.

Florida Audubon Society Property

The Florida Audubon Society owns a two-acre unmarked/undesignated parcel, which is located on the west side of the southern end of the Krome Avenue study corridor just north of SW 296th Street/Avocado Drive (Miami-Dade County Folio Number 30-7801-000-0583). The Florida Audubon Society parcel has no special land use designation (i.e., park, preserve, etc.); however, the land owner has designated the parcel as a bird watching site. There are no public facilities or





managed trails at this site. In addition, the site does not appear to be actively managed and has both native and exotic species growing throughout. Although the property is overgrown, several state-listed plant species exist within its limits, which appear to have been planted in order to attract birds and butterflies for viewing purposes. Due to the protected plant resources located on this site, plant surveys were conducted, which are discussed in [Section 3.3.12.6](#).

Redland Golf and Country Club

The Redland Golf and Country Club is located adjacent to the eastern Krome Avenue right-of-way, approximately 950 feet north of SW 248th Street. The golf course and country club are privately-owned and open to the public for use. The golf course is a designed recreational landscape that consists of 18 fairways. The first nine fairways were constructed circa 1947, and the remaining nine were added in 1963. This course has been modified very little since its completion. Due to its status as a NRHP-eligible resource, the Redland Golf Course is also discussed in [Section 3.2.1.2](#).



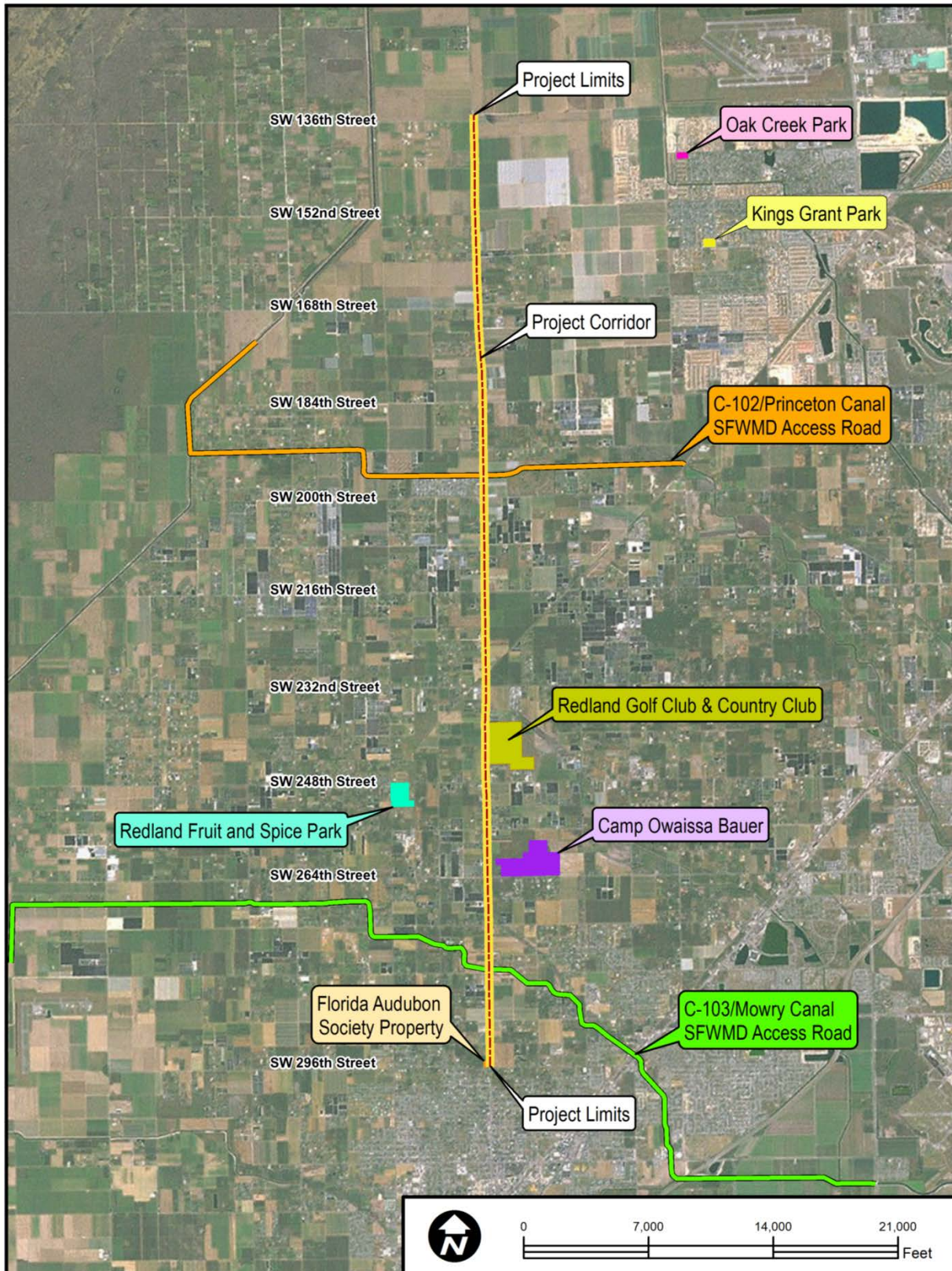


Figure 3-9 – Recreational and Parklands





3.3 NATURAL AND PHYSICAL RESOURCES

3.3.1 Bicycle and Pedestrian Facilities

No designated bicycle and/or pedestrian facilities currently exist along Krome Avenue or any of the adjacent side streets within the study limits. Additionally, there are no crosswalks and/or signalized pedestrian crossings at any of the existing signalized intersections in the study area. There are no designated equestrian trails along the study corridor.

Two unimproved SFWMD canal maintenance access roads bisect Krome Avenue within the study corridor. One of the maintenance access roads runs parallel to the SFWMD C-102/Princeton Canal, which crosses Krome Avenue at approximately SW 196th Street, while the other maintenance access road runs parallel to the SFWMD C-103/Mowry Canal, which crosses Krome Avenue just north of SW 280th Street. These roads are currently mowed/maintained by the SFWMD for maintenance access to the adjacent canals. The Miami-Dade Open Space Master Plan Vision Map (dated November 11, 2009) shows both of these maintenance access roads, as potential future “greenways” in the Miami-Dade County Parks and Open Space Master Plan. However, the SFWMD, the owner of these canal maintenance access roads, has no plans at this time for development of these canal maintenance access roads for trail use.

3.3.2 Visual / Aesthetics

The aesthetic quality of a corridor is composed of visual resources. These are physical features that make up the visible landscape, such as land, water, vegetation and man-made features. The man-made structures along the study corridor are predominated by open agriculture/nursery fields, modern commercial development, and emerging modern residential development. From SW 296th Street to SW 288th Street, residential estates occur on both sides of the corridor. From SW 288th Street to SW 272nd Street, residential estates occur only on the east side of Krome Avenue while agricultural land use occurs on the west side. North of SW 272nd Street, agriculture dominates land use along Krome Avenue with the exception of some intersections that are designated business and office land uses. Along the southern portion of the corridor, between SW 288th Street and SW 184th Street, three establishments were found to have active horse hitching posts, which show evidence of the historical rural character of Krome Avenue. The corridor also exhibits a unique natural scenery provided by a large number of landscaping and fruit plant nurseries abutting both sides of the road.

Two historic structures exist which make use of architectural design elements. These facilities are as follows (also discussed in [Section 3.2.1.2](#)):

- Howard Schaff Residence (8DA9674)
- Clarence J. Parman Residence (8DA9675)





Other visual resources along the Krome Avenue study corridor include the following:

- Owaissa Bauer Pineland Preserve Addition No. 1 (also discussed in [Section 3.3.12.5](#))
- Redland Golf Course (8DA10051) (also discussed in [Section 3.2.1.2](#) and [Section 3.2.3](#))
- Florida Audubon Society Property (also discussed in [Section 3.2.3](#) and [Section 3.3.12.5](#))

3.3.3 Air Quality

In accordance with applicable FHWA guidelines and guidelines contained in the FDOT *PD&E Manual*, Part 2, Chapter 16 – Air Quality Analysis (dated September 13, 2006), potential air quality impacts in the area surrounding the project corridor were assessed for all viable project alternatives, including the No-Build Alternative. The project's No-Build and Build alternatives were assessed for potential air quality impacts at the project level using the FDOT's PC based CO Florida 2012 screening model. For additional information regarding air quality, please refer to the *Air Quality Technical Memorandum* completed for this project, which is on file at the FDOT District Six offices in Miami, Florida and is incorporated by reference.

Traffic-generated air quality impacts are primarily a concern near signalized intersections during peak periods, when numerous vehicles are often stopped and idling during the traffic signal's red phase. The CO Florida 2012 model incorporates emission factors developed from the U.S. Environmental Protection Agency's (USEPA) Motor Vehicle Emission Simulator (MOVES) version 2010a model and the CAL3QHC2 dispersion model and includes several worst-case assumptions for traffic characteristics, receptor location, meteorology and terrain. The CO Florida 2012 model generates multiple default receptor locations, the numbers of which are dependent upon intersection type. User inputs to the screening model include project alternative; land use type; analysis year; and the volume and speed of peak hour traffic approaching the intersection. Given the local surroundings, a suburban land use type was selected, which includes a background CO level of 3.3 PPM for one-hour predictions and 2.0 PPM for eight-hour predictions.

Output from the CO Florida 2012 model includes the estimated one-hour and eight-hour CO level, in PPM, at the default receptor locations and a report stating whether the project passes or fails the screening analysis. Those results are then compared to the maximum one-hour and eight-hour concentrations for CO in the National Ambient Air Quality Standards (NAAQS), 35 PPM and 9 PPM, respectively. The premise of this approach is that CO concentrations elsewhere along the project corridor will be lower than these worst-case screening values. A project alternative that passes the CO Florida 2012 model is not expected to result in any violations of the NAAQS for CO and is not likely to have any impact on the air quality of the surrounding area.

The intersection chosen for the screening test is typically the one with the worst-case combination of highest traffic volumes, lowest vehicular speeds, and closest receptors. Based on the traffic analysis done for this study, the highest volume intersection, SW 184th Street (Eureka Drive), was selected as the worst-case intersection.





A receptor site is a place where people can reasonably be expected to spend a substantial amount of time. The CO Florida 2012 model generates several default receptor locations, the number of which is dependent upon intersection type. Based on the proposed typical sections, the closest distance from the edge of the travel lane to the right-of-way line for the No-Build conditions for Krome Avenue is 19 feet, and the closest distance for the Build alternatives is 42 feet. This distance is used to locate the default receptors. The default receptors (though not actual receptors) represent the closest distance a receptor can be from the edge of the travel lane (no receptors are located within the right-of-way), therefore providing the most conservative results. Worst case assumptions included in the screening model for suburban areas of Miami-Dade County were used. The air screening test location (signalized intersection representing the worst case assumptions) used for the air quality analysis is shown on [Figure 3-10](#).

The traffic data for both the opening year (2020) and the design year (2040) for the Build and No-Build alternatives were from the Socio-Economic Data Review and Traffic Volumes Update dated August 2012 (Appendix A of the *Preliminary Engineering Report*), which was an update to the *Draft Operational Analysis Technical Memorandum* for the Krome Avenue PD&E Study dated September 2005. The data shown in [Table 3-3](#), extracted from the August 2012 report, were used in the analysis. The traffic data is included in *Air Quality Technical Memorandum* completed for this project.

Table 3-3 – Krome Avenue at Eureka Drive Traffic Data

Alternative	Year	Average Approach Speed (mph)	Peak Hour Approach Volume (worst leg)
No-Build	2020	45	1,372
No-Build	2040	45	N/A
Build	2020	45	1,955
Build	2040	45	2,138



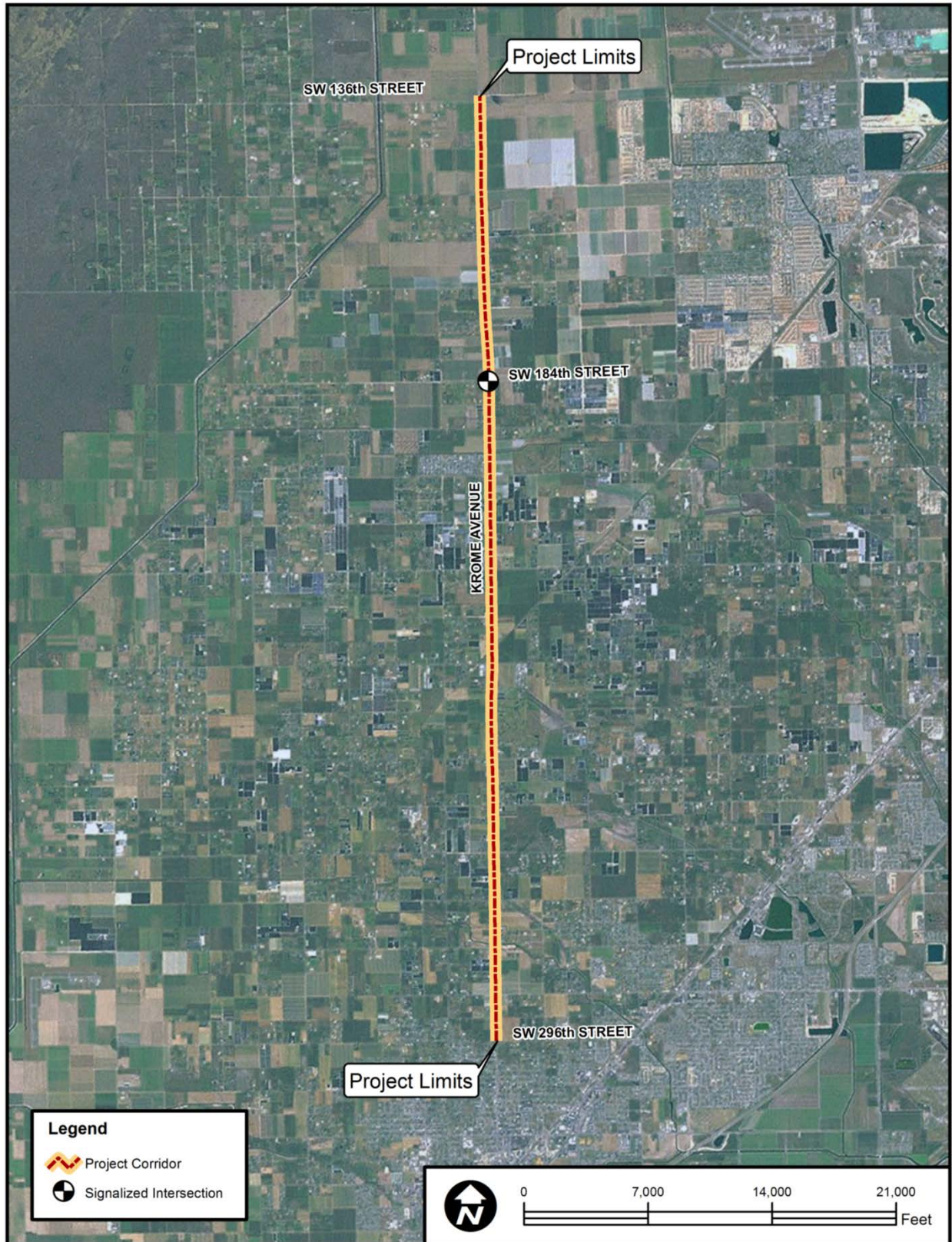


Figure 3-10 – Air Screening Test Location





3.3.4 Noise

A traffic noise study was conducted in accordance with the FDOT *PD&E Manual*, Part 2, Chapter 17 – Noise (dated May 24, 2011) and Title 23 Code of Federal Regulations (CFR) Part 772, *Procedures for Abatement of Highway Traffic Noise and Construction Noise* (July 13, 2010). The primary objectives of this noise study were to: describe the existing site conditions including noise sensitive land uses within the project study area, assess the significance of traffic noise impacts on noise sensitive sites for all of the build alternatives, and evaluate abatement measures for receptors that, under the build alternatives, approach or exceed the Noise Abatement Criteria (NAC) set forth by the FHWA. Other objectives of the traffic noise study included consideration of construction noise and vibration impacts and the development of noise level isopleths, which can be used in the future by Miami-Dade County to identify compatible land uses.

Noise sensitive sites are defined as properties where frequent human use occurs and where a lowered noise level would be beneficial. The FHWA has established NAC for seven land use activity categories. These criteria determine when an impact occurs and when consideration of noise abatement analysis is required. Maximum noise level thresholds have been established for five of these activity categories. These maximum thresholds, or criteria levels, represent acceptable traffic noise level conditions. The July 2010 NAC levels are presented in [Table 3-4](#). Noise abatement measures must be considered when predicted noise levels approach or exceed the NAC levels or when a substantial noise increase occurs. A substantial noise increase is defined as when the existing noise level is predicted to be exceeded by 15.0 dB(A) or more as a result of the transportation improvement project. The FDOT defines “approach” as within 1.0 dB(A) of the FHWA criteria, expressed as the FDOT NAC. As shown in [Table 3-4](#), the criteria vary according to a property’s activity category.

Table 3-4 – Noise Abatement Criteria

[Hourly A-Weighted Sound Level-Decibels [dB(A)]]				
Activity Category	Activity Leq(h) ¹		Evaluation Location	Description of Activity Category
	FHWA	FDOT		
A	57	56	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B ²	67	66	Exterior	Residential
C ²	67	66	Exterior	Active sports areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreational areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	51	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.





Table 3-4 – Noise Abatement Criteria

[Hourly A-Weighted Sound Level-Decibels [dB(A)]]				
Activity Category	Activity Leq(h) ¹		Evaluation Location	Description of Activity Category
	FHWA	FDOT		
E ²	72	71	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.
F	–	–	–	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	–	–	–	Undeveloped lands that are not permitted.

Source: Table 1 of 23 CFR Part 772

¹ The Leq(h) Activity Criteria values are for impact determination only, and are not a design standard for noise abatement measures.

² Includes undeveloped lands permitted for this activity category.

Note: FDOT defines that a substantial noise increase occurs when the existing noise level is predicted to be exceeded by 15 decibels or more as a result of the transportation improvement project. When this occurs, the requirement for abatement consideration will be followed.

Developed lands along the project corridor were evaluated to identify noise sensitive receptor sites that may be impacted by traffic noise associated with the proposed improvements. Noise sensitive receptor sites represent any property where frequent exterior human use occurs and where a lowered noise level would be of benefit. This includes residential units (FHWA Noise Abatement Activity Category B); other noise sensitive areas including parks and recreational areas, medical facilities, schools, and places of worship (Category C); and commercial properties (Category E). Noise sensitive sites also include interior use areas where no exterior activities occur for facilities such as auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, recording studios, and schools (Category D).

The project study area is generally suburban to the south and increasingly agricultural to the north. Most of the homes are located far apart from each other, on large lots. Relatively few of the homes are located in subdivisions. Forty-six residences that have the potential for noise impacts due to the proposed improvements were identified along the corridor. Two of these residences, the Howard Schaff Residence (27450 SW 177th Avenue) and Clarence J. Parman Residence (27250 SW 177th Avenue), are eligible for listing on the NRHP (also discussed in [Section 3.2.1.2](#)). Non-residential sites with potential to be impacted by the project included three churches, outdoor seating areas at three restaurants, the Grove Inn Country Guesthouse, and a pool at the Redland Country Club. The Florida Audubon Society owns a two-acre unmarked/undesignated parcel, which is located on the west side of Krome Avenue just north of SW 296th Street, near the southern end of the project corridor. This site has no special land use designation (i.e., park, preserve, etc.); however, the land owner has designated the parcel as a bird watching site. There are no public facilities or managed trails at this site, but the property is currently open to the public. Two unimproved SFWMD canal maintenance access roads run parallel to the C-103/Mowry Canal and the C-102/Princeton canal, respectively, crossing Krome





Avenue. There are no facilities such as picnic tables, campgrounds, or activity areas where large numbers of people may congregate for long periods of time. Typically, there is only occasional use of these areas; therefore, they are not considered areas of frequent human use. As such, these areas were not considered to be noise sensitive.

Field measurements were conducted at three locations along the project corridor. These measurements were conducted in accordance with the FHWA document, *Measurement of Highway-Related Noise* (FHWA-PD-96-046). The measurements were collected in or near residential neighborhoods between 64.5 and 91 feet from the edge of the nearest travel lane on Krome Avenue. The traffic noise levels during the measurements were found to range from 61.8 to 67.7 dB(A).

Under the existing conditions, the primary source of noise at the nearby noise sensitive sites is traffic on Krome Avenue. The FHWA Traffic Noise Model (TNM) Version 2.5 (February 2004) was used to predict worst-case traffic noise levels and to analyze the effectiveness of noise barriers. Existing traffic noise levels along Krome Avenue are predicted by the TNM to range from 52.1 to 67.8 dB(A). Existing traffic noise levels at the two NRHP-eligible sites, the Howard Schaff Residence and the Clarence J. Parman Residence are predicted to be 56.9 and 66.1 dB(A), respectively. The worst-case existing noise level at the Florida Audubon Society property is predicted to be 66.1 dB(A). For additional information on the model and existing noise conditions, please refer to the *Noise Study Report* completed for this project, which is on file at the FDOT District Six offices in Miami, Florida and is incorporated by reference.

3.3.5 Wetlands/Surface Waters

Pursuant to Presidential Executive Order 11990, entitled “Protection of Wetlands,” and in accordance with the FDOT *PD&E Manual*, Part 2, Chapter 18 – Wetlands (dated April 22, 2013), the project alternatives were analyzed for potential wetland and surface water impacts and a *Wetland Evaluation Report* was prepared for this project, which is on file at the FDOT District Six offices in Miami, Florida and is incorporated by reference.

The Krome Avenue study corridor was reviewed to identify, map and assess wetland and surface water communities that are located within or adjacent to the Krome Avenue study area. The study area consisted of the roadway corridor within the existing FDOT right-of-way limits and a review of adjacent lands within a distance of 100 feet east and west of the existing roadway right-of-way.

Pursuant to Presidential Executive Order 11990, the United States Department of Transportation (USDOT) has developed a policy (USDOT Order 5660.1A), Preservation of the Nation’s Wetlands (dated August 24, 1978), which requires all federally funded highway projects to protect wetlands to the fullest extent possible. In accordance with this policy, the project has been evaluated to determine which build alternatives would impact wetlands or surface waters, the extent to which those potential impacts would affect wetland functions and values, and mitigative measures that could be taken to minimize impacts.





In order to determine preliminary locations and boundaries of the existing wetland and surface water communities within the study area, available site-specific data was collected and reviewed. Using this information, the approximate locations and boundaries of wetland and surface water communities in the project area were determined and mapped in Geographic Information Systems (GIS) on aerial photography for verification in the field. The study area consisted of the roadway corridor within the existing FDOT right-of-way limits and a review of adjacent lands within a distance of 100 feet east and west of the existing roadway right-of-way.

Project biologists familiar with Florida wetland community types conducted field investigations of the study area in May and June 2004, with follow-up field reviews conducted in September and December 2010. The purpose of the field investigations was to locate and delineate wetland and surface water boundaries of the areas identified during the in-house data review as well as areas not previously identified. The extent of jurisdictional wetlands and/or surface waters for the Krome Avenue study area were determined using the approaches outlined in the U.S. Army Corps of Engineers (USACE) Wetlands Delineation Manual, Technical Report Y-87-1, January 1987; the November 2010 USACE Regional Supplement to the Corps of Engineers Wetland Delineation Manual for the Atlantic and Gulf Coastal Plain Region; and Chapter 62-340 Florida Administrative Code (FAC), "Delineation of the Landward Extent of Wetlands and Surface Waters." During the field investigation, attention was given to identifying plant species composition for each wetland/surface water area delineated as well as its adjacent upland habitats. Exotic plant infestations, shifts in historical communities, and any other disturbances were noted. Wildlife observations and signs of wildlife usage at each wetland/surface water and adjacent upland habitat were also noted.

Wetland surveys of the project study area were conducted by project biologists in 2004 and 2010. No areas with characteristics indicative of jurisdictional vegetated wetlands or waters of the United States, as defined by Section 404 of the Clean Water Act, were observed within or adjacent to the project study area. This includes natural wetland communities as well as swales or other manmade stormwater features.

However, three areas identified as surface waters consisting of two community types were identified within the study corridor. These areas consist of an inundated rock mining pit (borrow pit) (SW-1) excavated in Miami oolite rock located on the west side of Krome Avenue approximately 1,000 feet north of SW 208th Street; the SFWMD's C-102/Princeton canal (SW-2) which crosses Krome Avenue at approximately SW 196th Street; and the SFWMD's C-103/Mowry canal (SW-3) which crosses Krome Avenue just north of SW 280th Street. These areas, identified herein as SW-1, SW-2 and SW-3, respectively, are likely to be considered Surface Waters of the State and impacts are likely to be minimal. The existing conditions vary in terms of habitat value, quality, level of intrusion by exotic/invasive (undesirable) species and degree of geographical isolation. No public uses (i.e., recreational, scientific, cultural, public water supply system, etc.) were apparent for the rock mining pit (SW-1), which is located on private land. The canals (SW-2 and SW-3), operated and maintained by the SFWMD. These canals could also potentially be utilized for limited fishing and/or small boating activities. In regards to edge relationships, the boundaries of all three surface water areas are man-made; there are no areas that exhibit natural ecotones. For the most part, agricultural and residential land uses abut these surface water areas within the project limits. Also, regarding integrity (defined as a





complete or unimpaired state), the affected surface water areas along the study corridor have no substantial integrity since they are all man-made features, which are continuously impacted by the adjacent land use activities and regional hydrologic alterations contributing to the lack of biodiversity within these areas. These areas provide moderate to low habitat value for resident and migratory wildlife species. The three surface waters identified within the study corridor are described in detail below.

Table 3-5, lists each identified surface water area by type and classification. The locations and approximate boundaries of the surface water areas identified within the study area are shown in **Figures 3-11a, 3-11b, and 3-11c**.

Table 3-5 – Surface Water Type and Descriptions

Surface Water ID	Surface Water Type	Surface Water Size	FLUCFCS Code*	FLUCFCS Description	USFWS Code**	USFWS Description
SW-1	Former Borrow Pit	0.66 acres	742	Borrow Areas/ Lakes < 10 acres	PUBHx	Palustrine, Unconsolidated Bottom, Permanently Flooded, Excavated
SW-2 (C-102/ Princeton)	Canal	N/A	510	Streams and Waterways	R2UBHx	Rock Rubble Bottom, Permanently Flooded, Excavated
SW-3 (C-103/ Mowry)	Canal	N/A	510	Streams and Waterways	R2UBHx	Rock Rubble Bottom, Permanently Flooded, Excavated

* FLUCFCS = From the FLUCFCS (FDOT, 1999).

** USFWS = From the Classification of Wetlands and Deepwater Habitats of the United States

Source: Cowardin et al., 1979

Former Borrow Pit (SW-1)

FLUCFCS – 742 (Borrow Areas)

USFWS – PUBHx (Palustrine, Unconsolidated Bottom, Permanently Flooded, Excavated)

This surface water community (SW-1) consists of an apparent former borrow pit located on the west side of Krome Avenue, approximately 1,000 feet north of SW 208th Street or adjacent to the north of the SW 206th Street corridor (SW 206th Street does not yet exist in this area). The permanently inundated former borrow pit, excavated in Miami oolite rock, is rectangular in shape with high, steep side slopes. This feature is approximately 100 feet in width and approximately 290 feet in length with approximately 60 feet of the eastern portion situated within the study corridor. Agricultural land utilized for row crops borders this surface water feature to the south. Land utilized by an ornamental plant nursery borders the former borrow pit to the north and west. No surface water connections to nearby wetlands or other surface water areas exist; therefore, SW-1 can be considered as an isolated feature. The steep side slopes are densely vegetated with non-indigenous plant species that protrude over the water's edge such as Brazilian pepper (*Schinus terebinthifolius*), Australian pine (*Casuarina equisetifolia*), Brazilian jasmine (*Jasminum fluminense*), elephantgrass (*Pennisetum purpureum*), Noyau vine (*Merremia dissecta*), and Santa Maria feverfew (*Parthenium hysterophorus*). Other important components





of the vegetation cover of the steep-sided slopes include possum grape (*Cissus incisa*), muscadine (*Vitis rotundifolia*), and Virginia creeper (*Parthenocissus quinquefolia*).

No submergent or emergent hydrophytic vegetation was observed within the borrow pit with the exception of an individual giant leather fern (*Acrostichum danaeifolium*) observed at the water's edge along the eastern shoreline. Use of the site by wildlife was evidenced by the observation of a large number of cattle egrets (*Bubulcus ibis*) loafing in the vegetation overhanging the borrow pit, two green herons (*Butorides virescens*) observed foraging, several basking red-eared sliders (*Trachemys scripta elegans*), and several apparent unidentified tilapia nest depressions. This system is typical of abandoned limerock mining pits in the area.

Canals (SW-2 and SW-3)

FLUCFCS – 510 (Streams & Waterways)

USFWS – R2UBHx (Rock Rubble Bottom, Permanently Flooded, Excavated)

The C-102/Princeton canal (SW-2) and the C-103/Mowry canal (SW-3) are permanently-inundated drainageways with steep side slopes excavated in Miami oolite rock. In the vicinity of the project, both canals are located in areas primarily utilized for agricultural purposes with limited amount of low-density residential usage. Both canals, operated and maintained by the SFWMD, function to drain flood waters, recharge groundwater, and maintain fresh groundwater head elevation adequate to inhibit saltwater intrusion with eventual discharge to Biscayne Bay to the southeast through several downstream water control structures. Note that the portion of these waterways within the project study area are not categorized as Outstanding Florida Waters since the project location lies upstream of the SFWMD's salinity control structures [S-21A (C-102) and S-20F (C-103)].

Vegetation on the upland canal banks, which are regularly mowed by the SFWMD, includes weedy ruderal herbaceous species typical of regularly mowed non-wetland areas in southern Miami-Dade County. The steep side slopes of both canals in the vicinity of the proposed project offer little or no littoral habitat for the establishment of emergent hydrophytic vegetation. Submergent vegetation in the C-102/Princeton canal is dominated by Carolina fanwort (*Cabomba caroliniana*). Torpedo grass (*Panicum repens*) was also observed in the C-102/Princeton canal extending a short distance waterward from the shoreline around the dual-pipe culvert on the east side of Krome Avenue. Submergent vegetation in the C-103/Mowry canal is dominated by hydrilla (*Hydrilla verticillata*), Indian swampweed (*Hygrophila polysperma*), and creeping primrosewillow (*Ludwigia repens*). Both man-made canal systems provide moderate to low habitat value for resident and migratory wildlife species. Wildlife use was evidenced by observations of a foraging great blue heron (*Ardea herodias*) and two green herons, several basking red-eared sliders, and several unidentified exotic fish species in the canals. A dead, approximate six-foot alligator, wrapped in rope, was also observed within the C-102/Princeton canal on the east side of Krome Avenue during the field survey conducted on May 20, 2004.





Figure 3-11a – Surface Water Location Map (Former Borrow Pit – SW 1)



Figure 3-11b – Surface Water Location Map (C-102 Canal – SW 2)





Figure 3-11c – Surface Water Location Map (C-103 Canal – SW 3)





3.3.6 Water Quality

Water Quality Impact Evaluation

In accordance with the FDOT *PD&E Manual*, Part 2, Chapter 20 – Water Quality (dated February 25, 2004), a Water Quality Impact Evaluation has been conducted for this project.

Biscayne Aquifer

Miami-Dade County, including the project area, is underlain by the Biscayne Aquifer system, the sole source of potable water for most of southeastern Florida. This aquifer is a surficial, unconfined aquifer, which extends from the ground surface to a depth of more than 300 feet along the coast. The depth to groundwater fluctuates from two to three feet above mean sea level (msl) during the wet season to one foot above msl during the dry season. Recharge of the aquifer is through infiltration of precipitation and surface water. Since the aquifer is surficial, the groundwater within it can be affected by various land uses.

The Miami-Dade County Wellfield Protection Program protects the aquifer by restricting land uses within the vicinity of the public wellfields. The project corridor is located up-gradient of the following Miami Dade County wellfields:

- South Miami Wellfields
- Naranja Park
- Homestead Air Force Base
- Leisure City

Stormwater Management

The existing stormwater management system along the Krome Avenue corridor is inadequate, consisting of direct offsite discharge via overland flow from the embankment. A few intermittent roadside dirt swales/depressional areas exist; however, no formal water quality facilities occur along the corridor. There are also a few isolated systems constructed by off-site developments which are typically found at the larger intersections along the study corridor. The existing soil infiltration rates range from good to excellent allowing these systems to retain the contributing runoff onsite without any overflow. However, since stormwater treatment or peak attenuation is not provided throughout the corridor, Miami-Dade County and SFWMD water quality/quantity treatment standards are not being met. Proposed improvements within the Krome Avenue corridor need to address water quality and water quantity for pre-treatment of runoff, thereby improving overall regional water quality.

3.3.7 Outstanding Florida Waters

Two canals exist within the study corridor, the C-102/Princeton Canal and the C-103/Mowry Canal. Both canals, operated and maintained by the SFWMD, function to drain flood waters, recharge groundwater, and maintain fresh groundwater head elevation adequate to inhibit saltwater intrusion with eventual discharge to Biscayne Bay to the southeast through several





downstream water control structures. The portions of these waterways within the study area are not categorized as Outstanding Florida Waters since the project location lies upstream of the SFWMD's salinity control structures [S-21A (C-102) and S-20F (C-103)]. Therefore, the proposed project does not involve any Outstanding Florida Waters as defined in Chapter 62-302, FAC.

3.3.8 Contamination

A contamination screening evaluation was performed to evaluate potential impacts from contaminated sites to the project and a *Contamination Screening Evaluation Report* was prepared pursuant to the FHWA's *Technical Advisory T 6640.8A* and in accordance with the FDOT *PD&E Manual*, Part 2, Chapter 12 – Contamination Impacts (dated January 17, 2008). A copy of the *Contamination Screening Evaluation Report* is available for review at the FDOT District Six offices in Miami, Florida and is incorporated by reference. A review of all available data occurred in both 2006 and again in 2011, including agency file reviews at the Miami-Dade County Department of Environmental Resources Management (DERM) (now DRER EMRD), the Florida Department of Environmental Protection (FDEP), Environmental Data Resources, Inc. agency database search, city directories, Sanborn Fire Insurance Company maps, and aerial photography. In addition, a field reconnaissance was conducted in 2006 and again in 2011 to identify contamination concerns including the presence of detectable odors, discolored water, stained soil/grass, sheens or product in storm water structures, dead vegetation, air strippers, vent pipes, abandoned tanks, drums, and storage tanks. The field reconnaissance also served to confirm current business address listings and site conditions.

After a review of all available data identified above, 12 sites of potential concern were identified for the Krome Avenue study corridor: four sites rated as High risk, seven sites rated as Medium risk, and one site rated as Low risk. Remaining sites listed in the Environmental Data Resources, Inc. report are not considered a potential contamination concern either because of the current regulatory status of the site, the site's location/distance from the study corridor and/or because the site is down-gradient/cross-gradient with respect to the Krome Avenue study corridor. Additionally, the corridor is located up-gradient of the Redlands/Leisure City Brownfields area. The 12 identified potential contamination concerns are summarized in [Table 3-6](#) and shown in [Figures 3-12](#) through [3-12g](#).

3.3.9 Wild and Scenic Rivers

There are no designated wild and scenic rivers in the study area, as defined by the Wild and Scenic Rivers Act (16 USC 1271-1287).





Table 3-6 – Areas of Potential Contamination Concerns

Site ID	Property Description	Permit/ Facility ID#	Environmental Compliance Agency	Regulated Storage Tanks	Distance from Right- of-Way	Contamination Concern / Regulatory Status
High Risk Sites (H)						
H-1	Exxon Krome 19900 SW 177 th Avenue	13-8841197	FDEP/ DRER EMRD	Yes	Adjacent on West	Petroleum – LUST Site/ Currently undergoing Monitoring Only Plan
H-2	Krome Gas 24791 SW 177 th Avenue	13-8838498	FDEP/ DRER EMRD	Yes	Adjacent on east	Petroleum – LUST Site/ Currently undergoing assessment
H-3	Grove Services 25100 SW 177 th Avenue	13-8504784	FDEP/ DRER EMRD	Yes	Adjacent on West	Petroleum – LUST Site/ Entered in the state program. No activity at the current time
H-4	Corrina's 27200 SW 177 th Avenue	13-8506372	FDEP/ DRER EMRD	Yes	Adjacent on West	Petroleum – LUST Site/ Currently undergoing assessment and remedial action
Medium Risk Sites (M)						
M-1	Tom Thumb Food Store #122 23200 SW 177 th Ave	13-8628788	FDEP/ DRER EMRD	Yes	Adjacent on West	Petroleum – LUST Site/ Received Site Rehabilitation Completion Report
M-2	Tom Thumb Food Store #127 18400 SW 177 th Avenue	13-9502714 UT0003676	FDEP/ DRER EMRD	Yes	Adjacent on West	UST-No violations
M-3	Chevron 231500 SW 177 th Avenue	13-9806295	FDEP/ DRER EMRD	Yes	Adjacent on West	UST-No violations
M-4	Tom Thumb 24790 SW 177 th Avenue	13-9805056	FDEP	Yes	Adjacent on West	UST-No violations
M-5	Chevron 24800 SW 177 th Avenue	13-8622114	FDEP/ DRER EMRD	Yes	Adjacent on West	Petroleum/Registered LUST – Currently undergoing contamination assessment activities
M-6	Sunoco 26400 SW 177 th Avenue	13-9804112	FDEP	Yes	Adjacent on East	UST-No violations
M-7	Shell-Glades Country Store 17695 SW 272 nd Street	13-9808581	FDEP/ DRER EMRD	Yes	Adjacent on East	UST – Minor violations
Low Risk Sites (L)						
L-1	Additional Concern #1 (Plant Nurseries)	N/A	DRER EMRD	No	Both Sides Adjacent to Corridor	Pesticides/Herbicides

* LUST – Leaking Underground Storage Tank; UST – Underground Storage Tank.



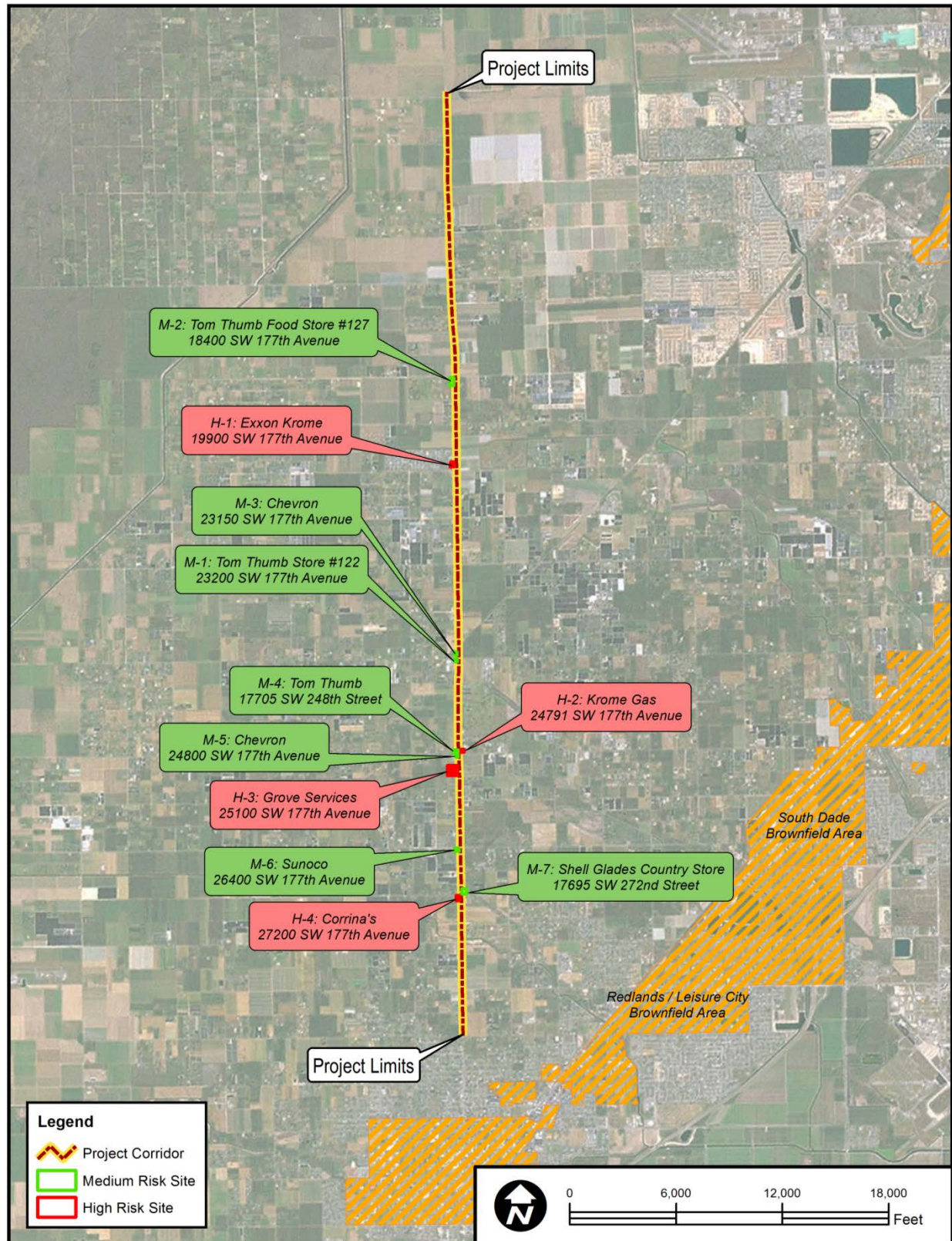


Figure 3-12 – Location of Potential Contamination Concerns



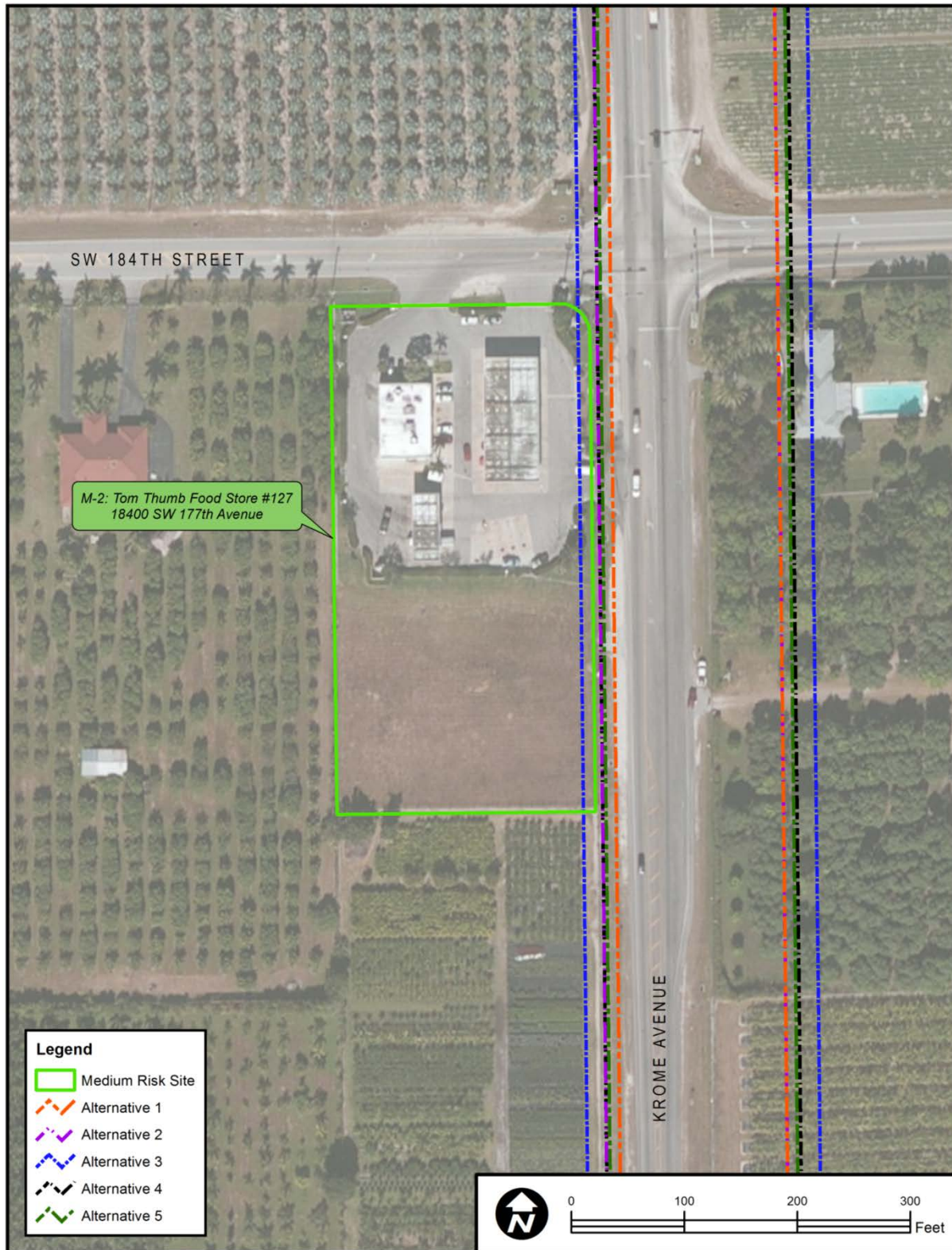


Figure 3-12a – Location of Potential Contamination Concern(s) and Proximity to Proposed Build Alternatives



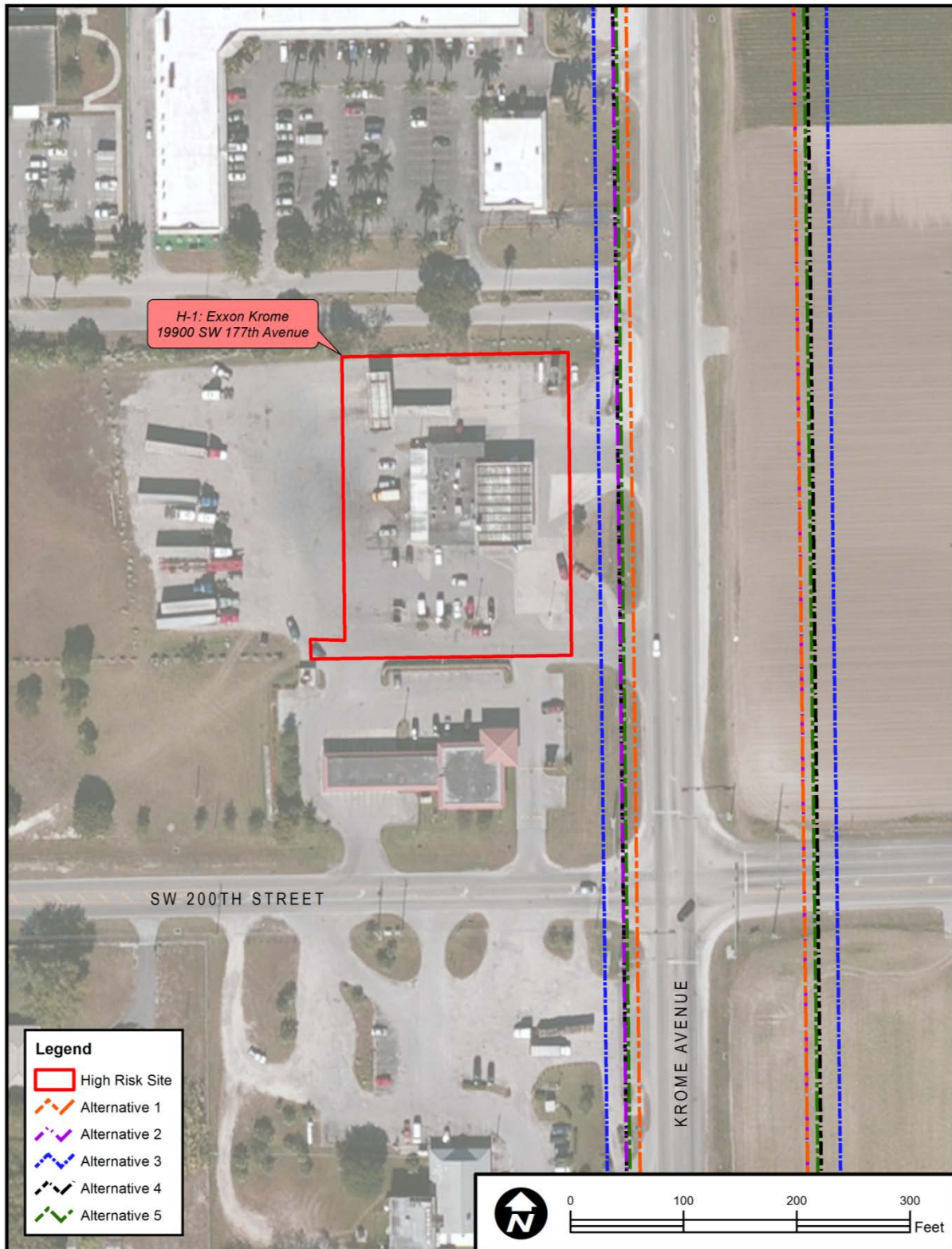


Figure 3-12b – Location of Potential Contamination Concern(s) and Proximity to Proposed Build Alternatives



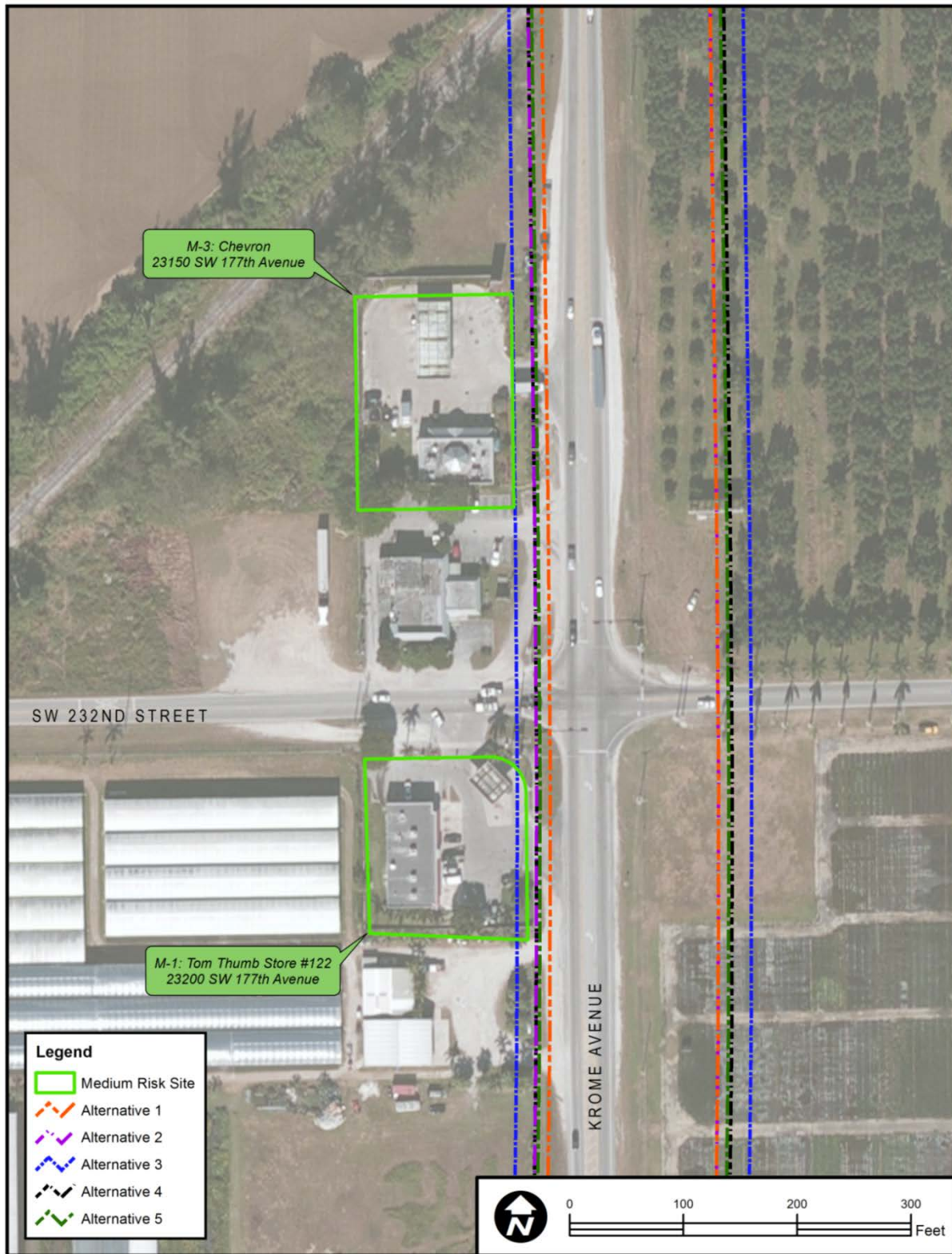


Figure 3-12c – Location of Potential Contamination Concern(s) and Proximity to Proposed Build Alternatives

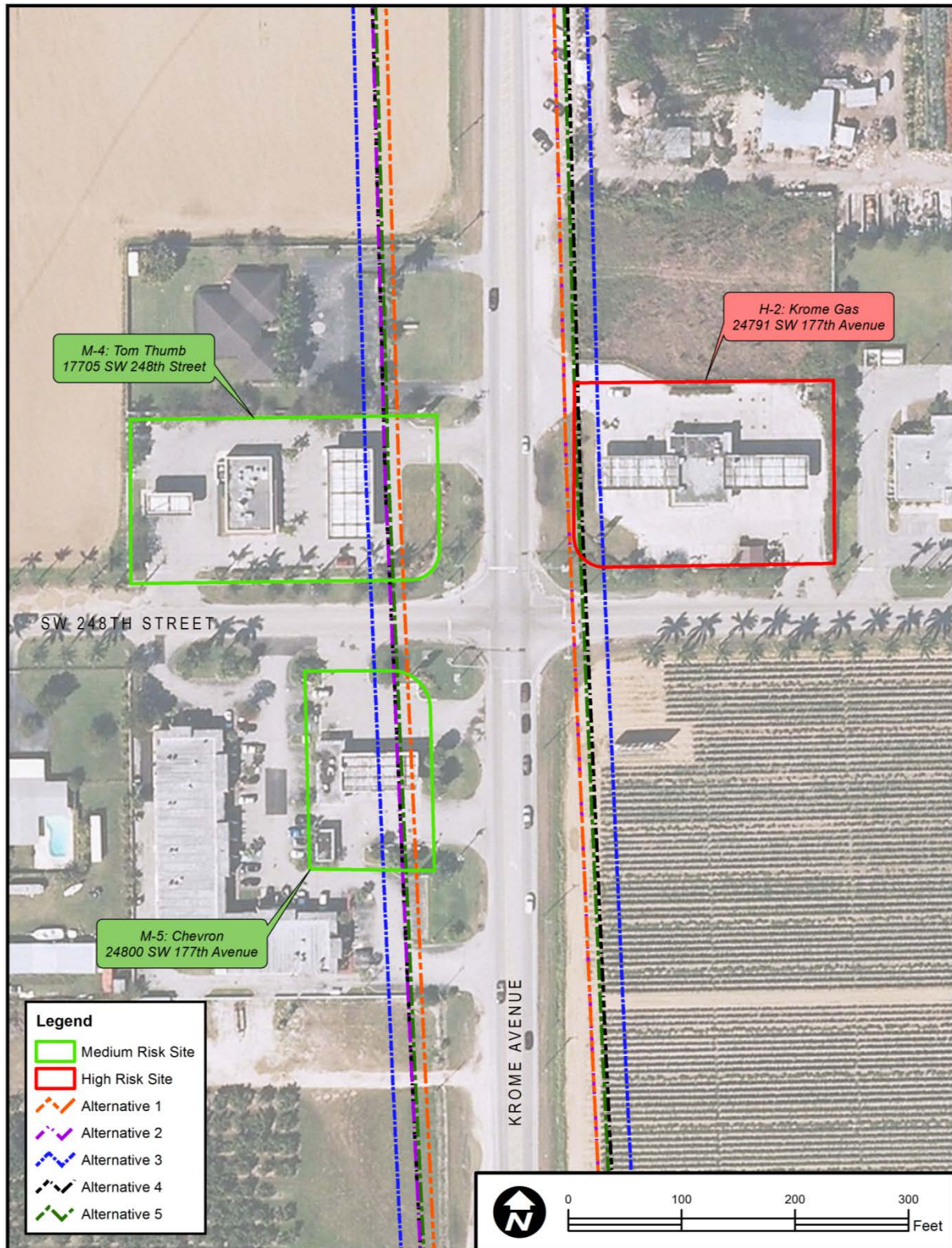


Figure 3-12d – Location of Potential Contamination Concern(s) and Proximity to Proposed Build Alternatives



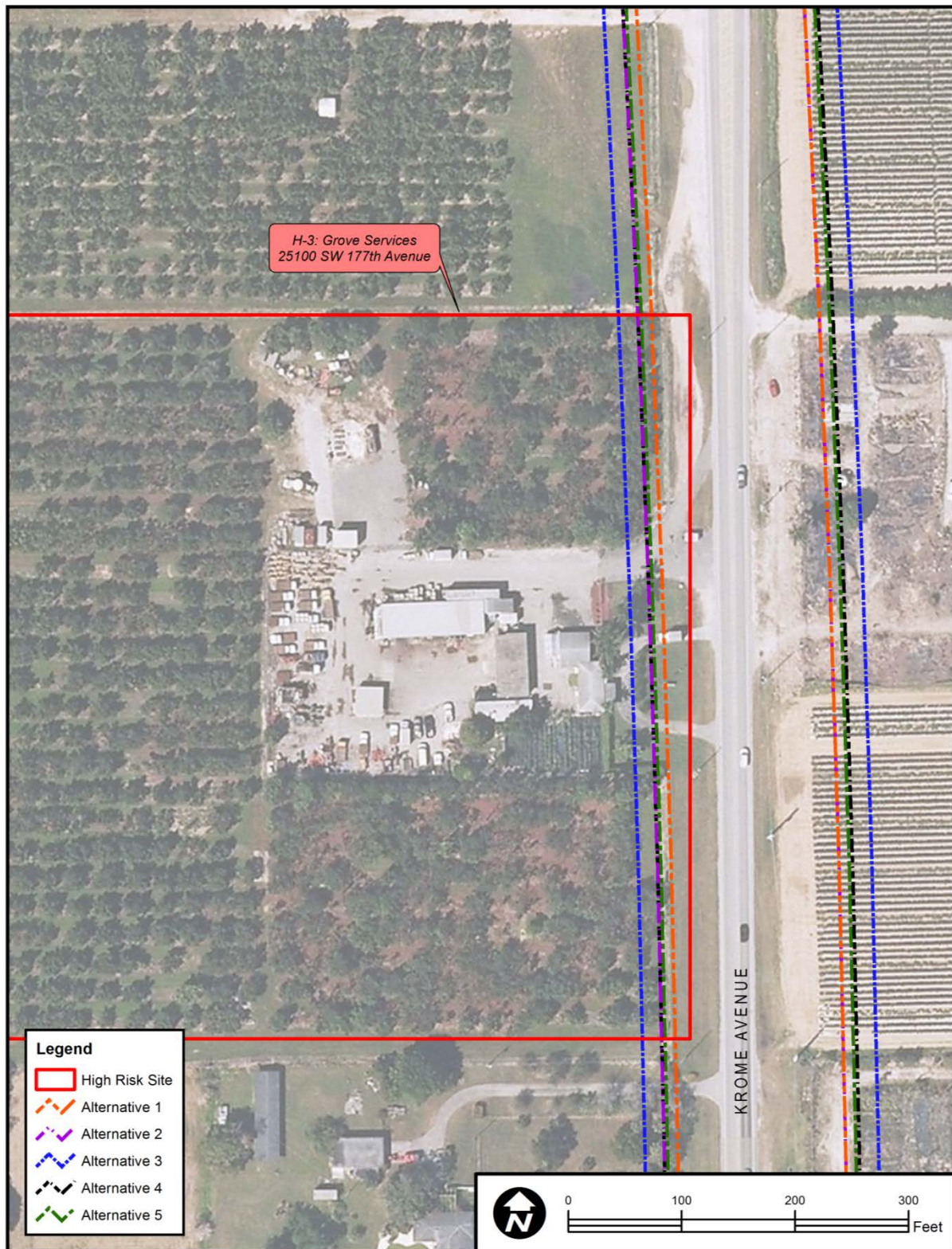


Figure 3-12e – Location of Potential Contamination Concern(s) and Proximity to Proposed Build Alternatives

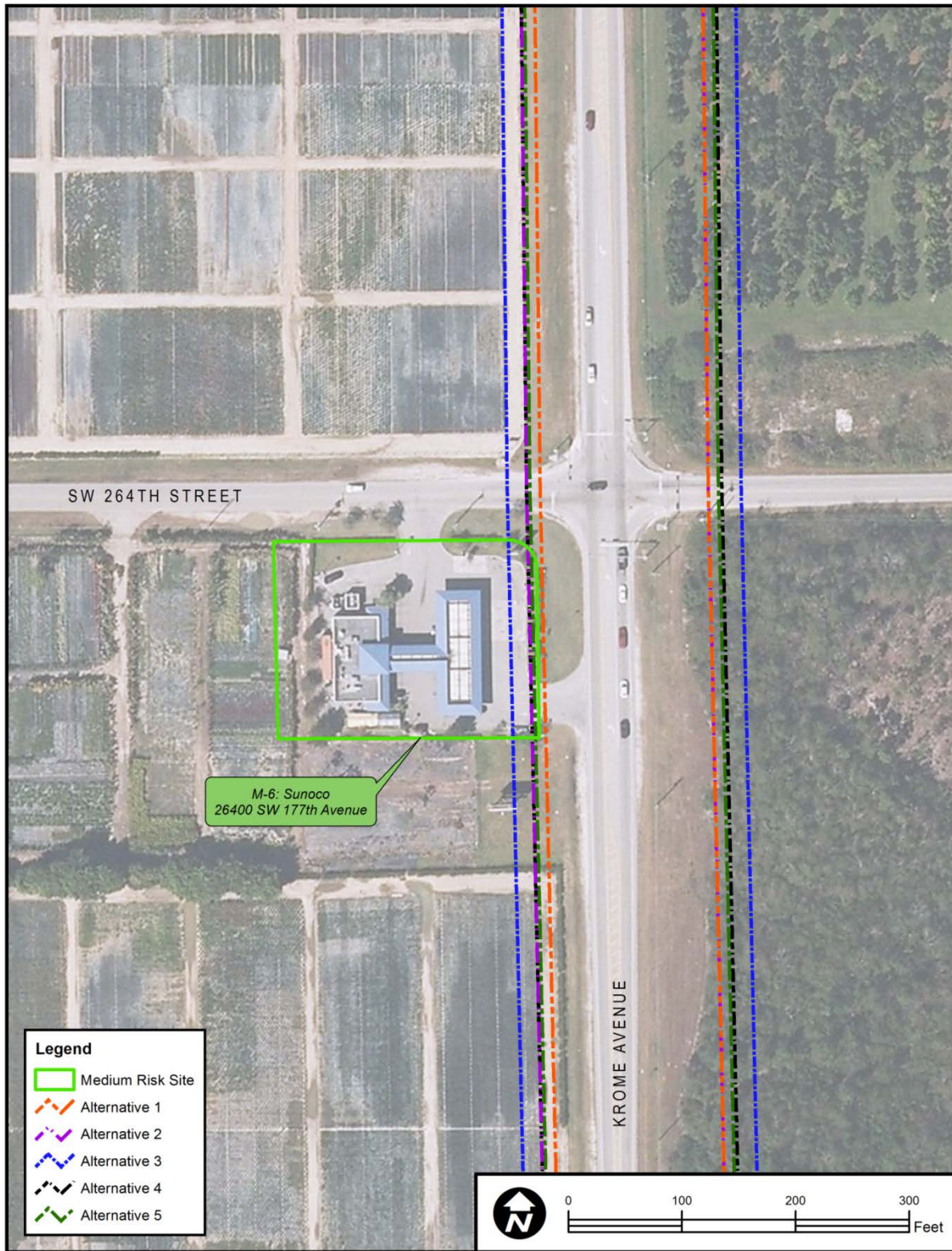


Figure 3-12f – Location of Potential Contamination Concern(s) and Proximity to Proposed Build Alternatives

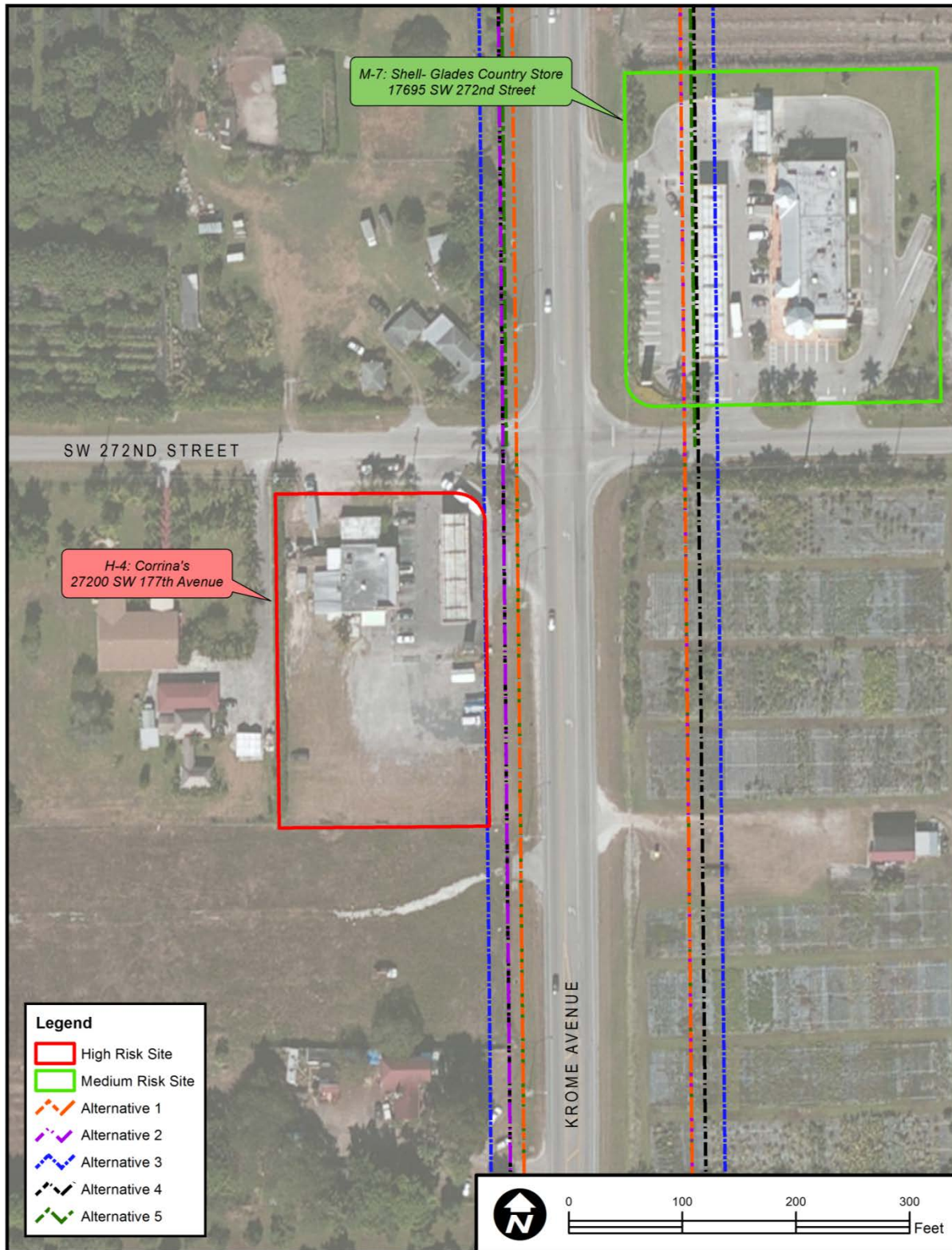


Figure 3-12g – Location of Potential Contamination Concern(s) and Proximity to Proposed Build Alternatives



3.3.10 Floodplains

Pursuant to Presidential Executive Order 11988, entitled “Floodplain Management,” USDOT Order 5650.2, and Chapter 23, CFR 650A, and in accordance with the FDOT *PD&E Manual*, Part 2, Chapter 24 – Floodplains (dated January 7, 2008), the project alternatives were analyzed for potential floodplain impacts. Floodplain impacts were incorporated into the *Wetland Evaluation Report* prepared for this project, which is available on file at the FDOT District Six offices in Miami, Florida and is incorporated by reference.

According to the revised 2012 Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) Community Panels 12086C0440L, 12086C0580L, 12086C0590L and 12086C0726L, most of the study corridor falls intermittently within Zones AH and X with the exception of a small portion just south of the northern project terminus (east side) that falls within Zone 0.2 pct Annual Chance Flood Hazard. Four FIRM panels illustrate the flood hazard potential along the study corridor. Zone AH is a special flood hazard area inundated by a 100-year flood event, with flood depths of one to three feet and characterized by areas of ponding. The base flood elevations have been determined. A base flood elevation of nine feet exists on the west side of Krome Avenue, and a base flood elevation of ten feet exists on the east side of Krome Avenue. Areas along the study corridor have also been designated as Zone X, which is an area determined to be outside of the 100-year floodplains, areas of 100-year sheet flow flooding where average depths are less than one foot, areas of 100-year stream flooding where the contributing drainage area is less than one square mile, or areas protected from the 100-year flood by levees. Areas designated as Zone 0.2 pct Annual Chance Flood Hazard are characterized as areas inundated by 0.2% annual chance flooding. No base flood elevations or depths are shown in the data collected within this zone for the study corridor.

The entire project length is outside of those areas identified as being affected by any projected sea level rise of up to five feet over the next 100 years. The FEMA 100-year Base Flood Elevation varies throughout the length of the project from Elevation 8.00 NGVD to Elevation 9.00 NGVD.

A map showing the FEMA FIRM Zones and associated FEMA 100-year Base Flood Elevations is provided as *Figure 3-13*.

3.3.11 Coastal Zone Consistency

In accordance with the FDOT *PD&E Manual*, Part 2, Chapter 25 – Coastal Zone Consistency (dated April 12, 2011), this project was reviewed by the FDEP for consistency with the Florida Coastal Management Program.



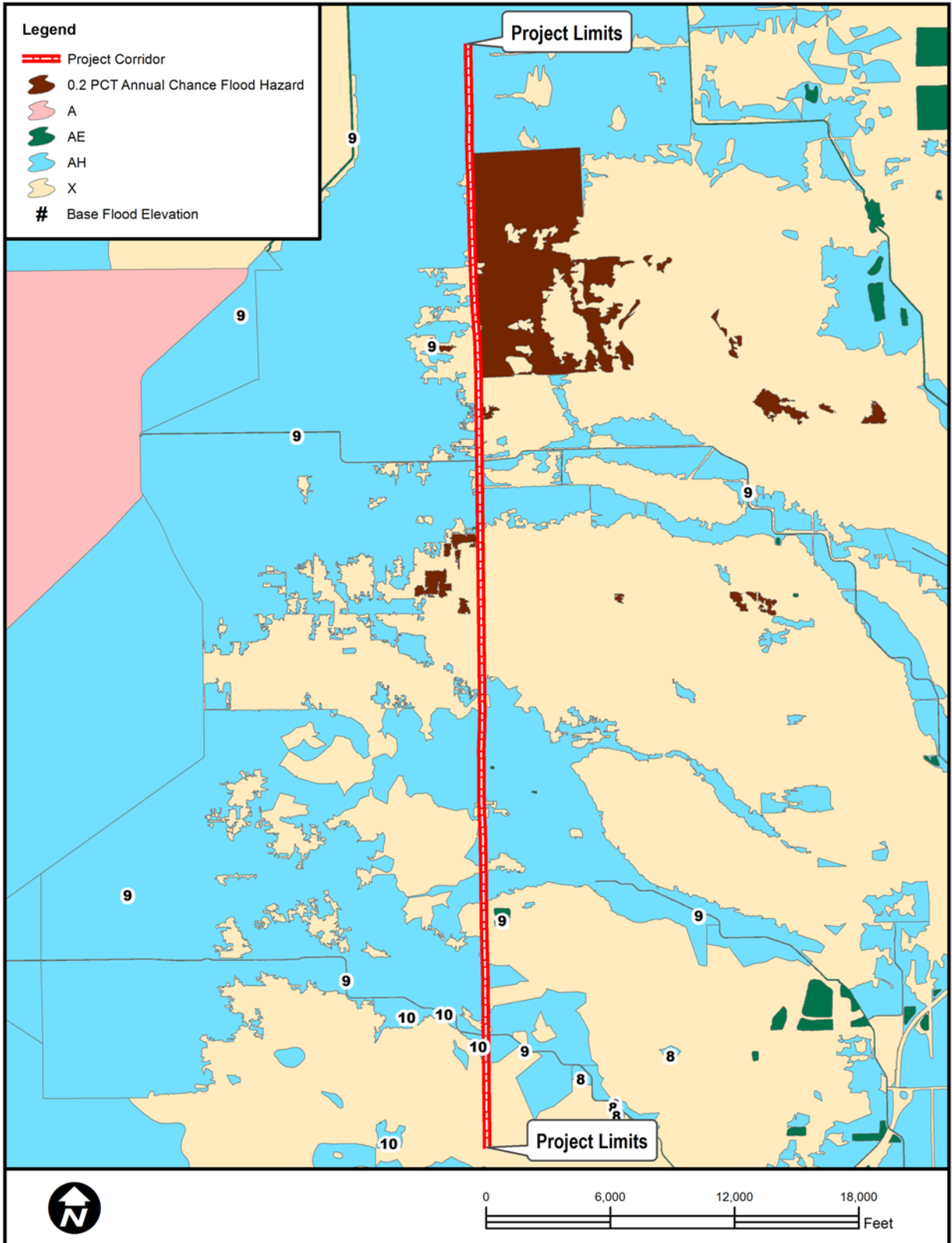


Figure 3-13 – FEMA FIRM Zones and FEMA 100-year Base Flood Elevations





3.3.12 Wildlife and Habitat

This project has been evaluated for potential impacts to threatened and endangered species in accordance with Section 7(c) of the Endangered Species Act of 1973, as amended, and Chapter 68A-27, FAC, “Rules Pertaining to Endangered and Threatened Species.” In accordance with the FDOT *PD&E Manual*, Part 2, Chapter 27 – Wildlife and Habitat Impacts (dated October 1, 1991), an *Endangered Species Biological Assessment* (ESBA) was prepared for this project, which is available for review at the FDOT District Six offices in Miami, Florida and is incorporated by reference.

Upland and wetland vegetative communities within the project study area were evaluated in order to assess the Krome Avenue study area for the potential occurrence of federal and state-listed protected species (flora and fauna). The composition of each natural community type was determined using published data and field reviews. The approximate boundaries of upland and wetland communities were mapped in GIS on aerial photography. Each community type was then classified using the FDOT’s FLUCFCS (FDOT, 1999) and the U.S. Fish and Wildlife Service (USFWS) *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin, et. al., 1979), where applicable.

Biologists familiar with Florida community types conducted six field investigations of the Krome Avenue study corridor between February 7, 2004, and November 30, 2010. The first investigation was conducted on February 7, 2004, to locate survey points (stationary observation stations and transects) for observing wildlife activity and the availability of existing resources (e.g., food sources, nesting areas). The second and third events were performed on March 3 and March 4, 2004, respectively, to conduct the pre-dawn to post-dusk wildlife surveys at the predetermined locations along the study corridor. The predetermined locations were located at the convergence of two or more communities to maximize the potential diversity of observed wildlife. One survey station was located at each of the following locations: the C-102/Princeton Canal which crosses Krome Avenue at approximately SW 196th Street, the C-103/Mowry Canal which crosses Krome Avenue just north of SW 280th Street, an inundated rock mining pit located on the west side of Krome Avenue approximately 1,000 feet north of SW 208th Street, a railroad crossing near SW 232nd Street, the Miami-Dade County EEL Program’s Owaissa Bauer Pineland Preserve Addition No. 1 site located in the southeast quadrant of the intersection of Krome Avenue and SW 264th Street, and the Florida Audubon Society property (a privately-owned and unmarked parcel) located on the west side of the southern end of the Krome Avenue study corridor just north of SW 296th Street. The fourth investigation occurred on May 20, 2004, to locate and delineate any wetland/surface water areas which have the potential to be impacted by the proposed project alternatives. The fifth field investigation took place on June 9, 2004, to characterize the identified upland areas along the approximate 10-mile study corridor. During these investigations, the preliminarily-defined community type boundaries and FLUCFCS/USFWS classification codes established through the literature reviews and aerial photograph interpretations were verified and/or refined. The sixth and final field investigation occurred in November 2010 for the purpose of reassessing the potential encroachment area within the limits of each build alternative at the Owaissa Bauer Pineland Preserve Addition No. 1 site and to field verify if any changes have occurred to the previously assessed habitat conditions since the 2004 surveys were conducted. One additional biological survey was conducted in





January 2012, to assess the potential encroachment area within the limits of the Florida Audubon Society property.

The study corridor was evaluated by direct observation for its potential to provide habitat for wildlife species based on the availability of existing resources (e.g., food sources, nesting areas, etc.). A comprehensive listing of plant taxa observed within the identified biotic communities along the study corridor is provided in the ESBA prepared for this project. Due to the potential presence of protected plant species at the Owaissa Bauer Pineland Preserve Addition No. 1 site and the Florida Audubon Society property, separate plant surveys were conducted at these sites, the results of which are discussed in [Section 3.3.12.5](#).

3.3.12.1 Upland Communities

Four upland vegetative community types were identified along the Krome Avenue study corridor. The majority of the corridor consists of land altered by human activities such as landscaped residential and commercial developments with maintained turf grass and ornamental shrubs and trees, agricultural lands (row crops and nurseries for landscape ornamental plants), and ruderal sites (roadsides, vacant lots, abandoned agricultural lands, and railroad-rights-of-way). A few sites along the corridor are comprised of communities dominated by one or more non-native invasive species in which the original native natural community was impacted by human activities and/or competitively eliminated by invasive non-native vegetation. The Florida Audubon Society property is located on the west side of the southern end of the proposed study corridor just north of SW 296th Street. This privately-owned unmarked parcel is recognized by the Florida Audubon Society as a private bird watching location. The parcel contains planted rockland and coastal upland hammock species used to attract birds and butterflies to the area for viewing. In addition, an ecologically important 9.39-acre pine rockland community known as Owaissa Bauer Pineland Preserve Addition No. 1, which is administered by the Miami-Dade County EEL Program, exists along the study corridor in the southeast quadrant of the intersection of Krome Avenue and SW 264th Street. Wildlife species that would potentially utilize these habitats are discussed in subsequent sections of this document.

3.3.12.2 Wetland / Surfacewater Communities

Wetland surveys of the project study area were conducted by project biologists in 2004 and 2010. No areas with characteristics indicative of jurisdictional vegetated wetlands or waters of the United States, as defined by Section 404 of the Clean Water Act, were observed within or adjacent to the project study area. This includes natural wetland communities as well as swales or other manmade stormwater features. However, three areas identified as surface waters consisting of two community types were identified and assessed. These areas consist of an inundated rock mining pit (borrow pit) (SW-1) excavated in Miami oolite rock located on the west side of Krome Avenue approximately 1,000 feet north of SW 208th Street; the SFWMD's C-102/Princeton canal (SW-2) which crosses Krome Avenue at approximately SW 196th Street; and the SFWMD's C-103/Mowry canal (SW-3) which crosses Krome Avenue just north of SW 280th Street. These features are also discussed in [Section 3.3.5](#).





3.3.12.3 Other Notable Upland Communities in Close Proximity to the Project

Other notable upland communities exist within close proximity to the Krome Avenue study corridor which may contribute to the potential presence of listed wildlife species along the study corridor. These include the following:

- Camp Owaissa Bauer (including the Everglades Archery Range) (discussed in [Section 3.2.3](#))
- Owaissa Bauer Pineland Preserve Addition No. 1 (discussed in [Section 3.3.12.5](#)) - Owaissa Bauer Pineland Preserve Addition No. 1 is a 9.39-acre Miami-Dade County EEL parcel located along Krome Avenue in the southeast quadrant of the intersection of Krome Avenue and SW 264th Street. Several native, protected pineland plants are located on this site. Due to the sensitive protected plant resources located on this site, plant surveys and coordination were conducted, which are discussed in [Section 3.3.12.5](#).
- Owaissa Bauer Pineland Preserve Addition No. 2 - Owaissa Bauer Pineland Preserve Addition No. 2 is a 10.0-acre Miami-Dade County EEL site located along SW 264th Street approximately 700 feet east (south of SW 264th Street) of the Krome Avenue study corridor. This area is contiguous to the east of the Owaissa Bauer Pineland Addition No. 1 parcel and several native, protected pineland plants are located on this site.
- Owaissa Bauer Pineland Preserve Addition No. 3 - Owaissa Bauer Pineland Preserve Addition No. 3 is a 1.25-acre Miami-Dade County EEL site located approximately 3,300 feet east (north of SW 264th Street) of the Krome Avenue study corridor. This area is not contiguous to the Owaissa Bauer Pineland Preserve Addition No. 1 or No. 2 parcels; however, this area is contiguous to the northeast of the Camp Owaissa Bauer site. Several native, protected pineland plants are located on this site.
- Local Parks – Oak Creek Park, Kings Grant Park, and Redland Fruit and Spice Park (discussed in [Section 3.2.3](#))
- Miami Rockridge Pinelands (including Ingram Pineland) - The Miami Rockridge Pinelands (including Ingram Pineland) are sites which are determined to be eligible for listing within the Dade County Archipelago Florida Forever Project. The Dade County Archipelago Florida Forever Project helps fund the public acquisition for conservation of privately owned subtropical pinelands and hardwood hammocks that remain in Miami-Dade County. These parcels are located along the south side of SW 288th Street approximately 5,000 feet east of the Krome Avenue Project corridor. Several native pineland and mixed hardwood upland plants are located on this site.
- Florida Audubon Society property (privately-owned unmarked parcel) (discussed in [Section 3.3.12.6](#))

3.3.12.4 Protected Species and Habitats

In accordance with Section 7(c) of the Endangered Species Act of 1973, as amended, and Chapter 68A-27 FAC, “Rules Pertaining to Endangered and Threatened Species,” the Krome Avenue study corridor was evaluated for the potential occurrences of federal and state-listed protected plant and animal species. Literature reviews, agency database searches and coordination, and habitat field reviews were conducted to identify protected species and any critical habitat that might occur within the study area.





Detailed pre-dawn to post-dusk wildlife surveys of the Krome Avenue corridor were conducted on March 3 and 4, 2004. The study corridor encompassed the existing Krome Avenue roadway right-of-way from SW 296th Street to SW 136th Street for approximately ten miles in Miami-Dade County, Florida. Please note that “wildlife” refers to birds, mammals, reptiles, amphibians, fish, and listed or otherwise notable macroinvertebrates (e.g. tree snails).

Additionally, agency coordination was conducted through the Advance Notification (AN) and Efficient Transportation Decision Making (ETDM) processes and directly with the FWC, the Florida Department of Agriculture and Consumer Services (FDACS), and the USFWS regarding protected plant and wildlife species. Agency coordination conducted for this project is also discussed in [Section 5.2](#). The USFWS and FWC AN responses are included in [Appendix H](#). Additionally, the USFWS And FDACS coordination logs are included in [Appendix I](#).

[Table 3-7](#) lists the federal and state-listed wildlife and plant species either observed during the surveys or having the potential to occur within the study corridor, based on availability of suitable habitat and known ranges. [Table 3-7](#) also provides the USFWS, FWC, and/or FDACS protection status for each species. Each species is given a rating of low, moderate, or high likelihood of occurring within the study corridor. Forty-four protected plant species, five protected reptile species, 12 protected bird species, one protected mollusk species, and three protected mammal species were identified as having the potential to occur within the project study corridor.

Table 3-7 – Listed Species Potentially Occurring Within the Project Study Corridor

Scientific Name	Vernacular Name	USFWS Status	FWC/ FDACS Status	Habitat Preference	Habitat Presence	Probability of Occurrence
Plants						
<i>Alvaradoa amorphoides</i>	Everglades leaf lace; Mexican alvaradoa		E	Pine rocklands; rockland hammock transition zones	Yes (OBA)	Moderate
<i>Angadenia berteroi</i>	Pineland golden trumpet		T	Pine rocklands; marl prairies; disturbed uplands	Yes (OBA)	High
<i>Argythamnia blodgettii</i>	Blodgett’s wild-mercury; Blodgett’s silverbush	C	E	Pine rocklands; openings and margins of rockland hammocks; coastal rock barrens	Yes (OBA)	High
<i>Bourreria cassinifolia</i>	Pineland strongbark; smooth strongbark; little strongbark		E	Pine rocklands	Yes (OBA)	Moderate
<i>Brickellia mosieri</i>	Mosier’s brickell-bush; Mosier’s false boneset		E	Pine rocklands; exposed limestone	Yes (OBA)	High
<i>Byrsonima lucida</i>	Long Key locustberry		T	Pine rocklands and rockland hammocks	Yes (OBA)	High
<i>Calypttranthes pallens</i>	Lid Flower		T	Rockland hammocks and coastal berm habitats	Yes (FASP)	High
<i>Calypttranthes zuzygium</i>	Myrtle-of-the-River		E	Rockland hammocks and coastal berm habitats	Yes (FASP)	High
<i>Chamaesyce deltoidea</i>	Deltoid spurge; wedge sandmat; rockland spurge	E	E	Pine rocklands with scattered shrubs and exposed limestone	Yes (OBA)	High





Table 3-7 – Listed Species Potentially Occurring Within the Project Study Corridor

Scientific Name	Vernacular Name	USFWS Status	FWC/ FDACS Status	Habitat Preference	Habitat Presence	Probability of Occurrence
<i>Chamaesyce garberi</i>	Garber's spurge	T	E	Sandy soils over limestone in pine rocklands; hammock edges; coastal rock barrens; coastal berms; grass prairies	Yes (OBA)	Moderate
<i>Chamaesyce porteriana</i>	Porter's spurge; Porter's sandmat		E	Pine rocklands; rockland hammocks; marl prairie; coastal rock barrens	Yes (OBA)	Moderate
<i>Chaptalia albicans</i>	White sunbonnet		T	Pine rocklands	Yes (OBA)	High
<i>Colubrina cubensis</i> var. <i>floridana</i>	Cuban snakebark; Cuban nakedwood		E	Edges of rockland hammocks; pine rocklands	Yes (OBA)	Moderate
<i>Coccothrinax argentata</i>	Florida silver palm		T	Pine rocklands; rockland hammocks; coastal strands	Yes (OBA)	High
<i>Crossopetalum ilicifolium</i>	Christmasberry; quail-berry		T	Pine rocklands; rockland hammocks; coastal strands	Yes (OBA)	High
<i>Dalea carthagenensis</i> var. <i>floridana</i>	Florida prairie-clover		E	Pine rocklands; edges of rockland hammocks; coastal uplands; marl prairie	Yes (OBA)	Moderate
<i>Ernodea cokeri</i>	Coker's beach creeper		E	Pine rocklands	Yes (OBA)	Moderate
<i>Eupatorium</i> (= <i>Koanophyllon</i>) <i>villosum</i>	Florida Keys thoroughwort; Florida shrub thoroughwort		E	Pine woods; hammocks	Yes (OBA)	High
<i>Galactia smallii</i>	Small's milkpea		E	Redland pine rocklands with slash pine, saw palmetto, willow bastic and poisonwood	Yes (OBA)	Moderate
<i>Ipomoea microdactyla</i>	Man-in-the-ground; Wild potato morning-glory		E	Pine rocklands	Yes (OBA)	Moderate
<i>Ipomoea tenuissima</i>	Rockland morning-glory		E	Pine rocklands	Yes (OBA)	Moderate
<i>Jacquemontia curtissii</i>	Pineland clustervine		T	Pine rocklands; marl prairie; spoil banks; mesic flatwoods	Yes (OBA)	Moderate
<i>Jacquemontia pentanthos</i>	Skyblue clustervine		E	Pine rocklands; disturbed openings and edges of rockland hammocks; coastal rock barrens	Yes (OBA)	Moderate
<i>Lantana depressa</i> var. <i>depressa</i>	Pineland lantana; rockland shrubverbena		E	Pine rocklands	Yes (OBA)	High
<i>Linum arenicola</i>	Sand flax		E	Pine rocklands; marl prairie; adjacent disturbed areas	Yes (OBA)	Moderate
<i>Linum carteri</i> var. <i>carteri</i>	Carter's flax	C	E	Mowed pine rocklands	Yes (OBA)	High
<i>Myrcianthes fragrans</i>	Simpson's stopper		T	Hammocks	Yes (OBA/ FASP)	High
<i>Polygala smallii</i>	Tiny polygala, Small's milkwort	E	E	Pine rocklands; scrub, sandhills	Yes (OBA)	Moderate





Table 3-7 – Listed Species Potentially Occurring Within the Project Study Corridor

Scientific Name	Vernacular Name	USFWS Status	FWC/ FDACS Status	Habitat Preference	Habitat Presence	Probability of Occurrence
<i>Ponthieva brittoniae</i>	Mrs. Britton's shadow witch		E	Pine rocklands	Yes (OBA)	Moderate
<i>Prunus myrtifolia</i>	West Indian Cherry		T	Rockland hammocks	Yes (FASP)	High
<i>Psidium longipes</i>	Long-stalked stopper, mangroveberry		T	Pine rocklands, rockland hammocks	Yes (OBA)	Moderate
<i>Pteris bahamensis</i>	Bahama ladder brake		T	Moist, well-drained limestone soils in pine rocklands	YES (OBA)	High
<i>Pteroglossaspis ecristata</i>	Giant orchid		T	Sand pine scrub; sandhills; pine rocklands	Yes (OBA)	Moderate
<i>Rhynchosia parvifolia</i>	Small-leaf snoutbean		T	Moist, well-drained limestone soils in pineland and scrub habitats	Yes (OBA)	High
<i>Roystonea regia</i>	Florida royal palm		E	Tropical hardwood hammocks, rockland hammocks, strand swamp and disturbed wetlands	Yes (FASP)	High
<i>Sachsia polycephala</i>	Bahama sachsia		T	Pine rocklands	Yes (OBA)	High
<i>Savia bahamensis</i>	Bahama maidenbush		E	Coastal hammocks; pine rocklands; tropical hammock margins	Yes (OBA)	Moderate
<i>Senna mexicana</i> var. <i>chapmanii</i>	Chapman's wild sensitive plant		T	Pinelands; edges of rockland hammocks	Yes (OBA)	High
<i>Smilax havanensis</i>	Everglades greenbrier		T	Pinelands; hammocks	Yes (OBA)	High
<i>Spiranthes torta</i>	Southern ladies'-tresses		E	Pine rocklands; marl prairies	Yes (OBA)	Moderate
<i>Stylosanthes calcicola</i>	Everglades pencil-flower		E	Pine rocklands; marl prairies	Yes (OBA)	Moderate
<i>Swietenia mahagoni</i>	West Indian Mahogany		T	Pine rocklands, rockland hammocks and disturbed upland areas	Yes (FASP)	High
<i>Tephrosia angustissima</i> var. <i>angustissima</i> and <i>T. angustissima</i> var. <i>corallicola</i>	Narrowleaf hoarypea and coral hoarypea		E	Pine rocklands	Yes (OBA)	Moderate
<i>Tetrazygia bicolor</i>	Tetrazygia		T	Rockland hammocks; pinelands	Yes (OBA)	High
<i>Tillandsia fasciculata</i> var. <i>densispica</i>	Cardinal airplant		E	Moist hammocks and swamps	Yes (OBA)	High
<i>Tragia saxicola</i>	Key West noseburn		T	Moist, well-drained limestone soils in pineland rocklands	Yes (OBA)	High
<i>Zamia pumila</i>	Coontie		CE	Pine woods	Yes (OBA)	High





Table 3-7 – Listed Species Potentially Occurring Within the Project Study Corridor

Scientific Name	Vernacular Name	USFWS Status	FWC/ FDACS Status	Habitat Preference	Habitat Presence	Probability of Occurrence
Reptiles						
<i>Alligator mississippiensis</i>	American alligator	T(S/A)	FT(S/A)	Most permanent bodies of water	Yes	High
<i>Drymarchon corais couperi</i>	Eastern indigo snake	T	FT	Broad range of habitats from mangrove swamps and wet prairies to xeric pinelands and scrub	Yes	Moderate
<i>Tantilla oolitica</i>	Rim rock crowned snake, Miami black-headed snake		ST	Tropical hardwood hammocks; pine rocklands; vacant lots and pastures with shrubby growth and scattered slash pine	Yes	Moderate
<i>Pituophis melanoleucus mugitus</i>	Florida Pine Snake		SSC	Dry upland habitats, especially in sandhill, pastures, sand pine scrub and scrubby flatwoods.	Yes	Moderate
<i>Gopherus polyphemus</i>	Gopher tortoise		ST	Dry upland habitats including sandhills, xeric oak hammock, and dry pine flatwoods. Excavate deep burrows in soft sand.	No	Low
Birds						
<i>Aramus guarauna</i>	Limpkin		SSC	Mangroves; freshwater marshes; swamps; springs spring runs; and pond and river margins	No	Low
<i>Athene (=Speotyto) cunicularia floridana</i>	Florida burrowing owl		SSC	Makes extensive use of ruderal areas such as pastures, airports, ball fields, parks, school grounds, road right-of-ways, and vacant spaces in residential areas	Yes	Low
<i>Egretta caerulea</i>	Little blue heron		SSC	Feeds in shallow freshwater, brackish, and saltwater habitats; prefers foraging in freshwater lakes, marshes, swamps, and streams	No	Moderate
<i>Egretta rufescens</i>	Reddish egret		SSC	Almost exclusively coastal. Nests on coastal mangrove islands or spoil islands	No	Moderate
<i>Ajaia ajaja</i>	Roseate spoonbill		SSC	Nests in mixed-species colonies on coastal mangrove islands or spoil islands	No	Moderate
<i>Egretta thula</i>	Snowy egret		SSC	Feeds in many types of flooded wetlands, streams, lakes, and swamps, and in impoundments and ditches; nesting almost always in areas separated from shoreline by extensive open water	Yes	Moderate





Table 3-7 – Listed Species Potentially Occurring Within the Project Study Corridor

Scientific Name	Vernacular Name	USFWS Status	FWC/ FDACS Status	Habitat Preference	Habitat Presence	Probability of Occurrence
<i>Egretta tricolor</i>	Tricolored heron		SSC	Feeds in variety of flooded wetlands, mangroves, tidal creeks, ditches, and edges of ponds and lakes; prefers nesting on islands or in trees over standing water	Yes	High
<i>Eudocimus albus</i>	White ibis		SSC	Utilize a wide variety of habitats including marshes, salt flats and salt marsh meadows, seasonally inundated fields, and ditches	Yes	High
<i>Falco sparverius paulus</i>	Southeastern American kestrel		ST	Preferred nesting sites are tall dead trees or utility poles with suitable cavities in open pine habitat	No	High
<i>Haliaeetus leucocephalus</i>	Bald eagle	NL	NL	Most commonly near bodies of water that provide concentrations of food sources; prefer tall trees (mostly live pines) providing clear views of surrounding area	No	Low
<i>Mycteria americana</i>	Wood stork	E	FE	Foraging habitat shallow water in marshes, swamps, lagoons, ponds, tidal creeks, flooded pastures, and ditches	No	Low
<i>Rostrhamus Sociabilis plumbeus</i>	Everglade snail kite	E	FE	Large open freshwater marshes and lakes with shallow water	No	Low
Mollusks						
<i>Liguus fasciatus</i>	Florida Tree Snail		SSC	Tropical hardwood hammocks, rockland hammocks	Yes	High
Mammals						
<i>Eumops floridanus</i>	Florida bonneted (mastiff) bat		ST	Roosting preferences are shafts of royal palms, tree hollows and holes, and buildings (particularly barrel tile roofs)	No	Low
<i>Podomys floridanus</i>	Florida mouse		SSC	Xeric upland communities with sandy soils including scrub, sandhill, and ruderal sites where they inhabit burrows of the gopher tortoise	No	Low
<i>Trichechus manatus latirostris</i>	West Indian manatee, Florida manatee	E	FE	Near-shore waters; canals; rivers; estuaries; and saltwater bays	Yes	Moderate

USFWS = United States Fish and Wildlife Service - The federal lists of animals and plants are administered by the USFWS and categorized into endangered and threatened and are published in 50 CFR 17 (animals) and 50 CFR 23 (plants).
FWC = Florida Fish and Wildlife Conservation Commission - The state lists of animals are maintained by the Florida Fish and Wildlife Conservation Commission and categorized as Endangered, Threatened, and of Species of Special Concern contained in Chapter 68A-27, FAC, "Rules Pertaining to Endangered or Threatened Species."





- FDACS = Florida Department Of Agriculture and Consumer Services - The state lists of plants are categorized into Endangered, Threatened, And Commercially Exploited and are administered and maintained by the FDACS via Chapter 5B-40 FAC.
- E = Endangered
- T = Threatened
- FE = Federally Endangered
- FT = Federally Threatened
- FT (S/A) = Federally Threatened due to Similarity of Appearance
- ST = State Threatened
- C = Federal Candidate for listing
- CE = Commercially Exploited Plant List
- NL = Not Listed but protected by the Bald and Golden Eagle Protection Act
- SSC = Species of Special Concern
- OBA = Applicable only to a portion of the study corridor adjacent to Owaissa Bauer Pineland Preserve Addition No.1 tract south of SW 264th Street (Bauer Drive)
- FASP = The Florida Audubon Society property is a privately-owned unmarked/undesignated two-acre parcel located along the west side of Krome Avenue just north of SW 296th Street/Avocado Drive (Miami-Dade County Folio Number 30-7801-000-0583)

3.3.12.5 Designated Habitats

Critical Habitats

Critical habitat is a specific, federally-designated, geographic area that is essential for the conservation of a threatened or endangered species that may require special management and protection, but they are not considered a refuge or sanctuary for the species. Critical habitat may include an area that is not currently occupied by the species, but that will be needed for its recovery. An area is designated as critical habitat after the USFWS (or the National Oceanic and Atmospheric Administration's National Marine Fisheries Service) publish a proposed federal regulation in the Federal Register and then receives public comments on the proposal. The final boundaries of the critical habitat areas are also published in the Federal Register. According to the USFWS's Federally Listed & Candidate Species in Miami-Dade County, Florida (2011), no critical habitats for any plant or wildlife species are located within or directly adjacent to the proposed project study area.

South Florida Multi-Species Recovery Plan Consultation Areas

Per USFWS South Florida Ecological Services Field Office GIS data (2012), the project corridor is located within designated "Consultation Areas" for the Everglade snail kite and the American crocodile. Proposed roadway construction activities within these designated areas will typically require coordination/consultation with the USFWS.

Strategic Habitat Conservation Areas

Strategic Habitat Conservation Areas are defined as regions not in public ownership, which are recommended for protection in order to maintain biological diversity. These Strategic Habitat Conservation Area designations are intended to indicate that the existing land use should be maintained in order to conserve state-wide biodiversity. The Strategic Habitat Conservation Areas were originally mapped state-wide in association with the FWC's *Closing the Gaps in Florida's Wildlife Habitat Conservation System* report (Cox et al., 1994). Since 1994, landscape-





level habitat changes, transfer of land from private to public ownership, and changes in land use have all altered the applicability of the originally mapped Strategic Habitat Conservation Areas. Advances in technological capabilities, revised habitat data, and more extensive species occurrence data facilitated a reassessment of Florida's biodiversity protection status. Additionally, advances in population viability modeling techniques allow for more in-depth examination of wildlife habitat needs that were not available in the previous report. The results of the reanalysis have identified Strategic Habitat Conservation Areas for a new selection of focal species, including many species that were in the original report. According to the updated report, *Wildlife Habitat Conservation Needs in Florida: Updated Recommendations for Strategic Habitat Conservation Areas* (Endries et al., 2009), there are no Strategic Habitat Conservation Areas within close proximity to the project study area.

Owaissa Bauer Pineland Preserve Addition No. 1

The Owaissa Bauer Pineland Preserve Addition No. 1 site is a 9.39-acre EEL parcel located along the Krome Avenue study corridor (Miami-Dade County Folio Number 30-6931-000-0160) bordered by SW 264th Street/Bauer Drive to the north and Krome Avenue to the west. One type of natural community occurs within the Owaissa Bauer Pineland Preserve Addition No. 1 parcel, pine rockland, which covers approximately 70.4% (6.61 acres) of the site. The remaining 29.6% (2.78 acres) of the site is disturbed, and consists primarily of abandoned paved roads and the grassy/weedy road shoulder along Krome Avenue. According to surveys by or for Miami-Dade County EEL, as many as 231 plant species from 66 botanical families have been recorded at the Owaissa Bauer Pineland Preserve Addition No. 1 parcel. Native plants account for 75.8% of the flora (175 taxa) and exotics 23.4% (54 taxa). Thirteen of the plant species in the Owaissa Bauer Pineland Preserve Addition No. 1 parcel are endemic to South Florida (Lake Okeechobee and south). Four of these: Carter's flax, deltoid spurge, Mosier's false boneset, and pineland lantana are endemic to Miami-Dade County.

Detailed habitat and plant surveys were conducted in 2006 and in 2010 on the Owaissa Bauer Pineland Preserve Addition No. 1 parcel within the limits of the proposed build alternatives for this project. The results of the 2006 and 2010 plant surveys are shown in [Table 3-8](#) and depicted on [Figure 3-14](#) and [Figures 3-15a](#) and [3-15b](#), respectively.





**Table 3-8 – Protected Plants Observed Within the Owaissa Bauer Pineland Preserve Addition
No. 1 Portion of the Krome Avenue Roadway Study Corridor**

Scientific Name	Vernacular Name	USFWS Status	FWC/ FDACS Status	Observed	
				2006 Survey	2010 Survey
<i>Angadenia berteroi</i>	pineland golden trumpet		T	Yes	Yes
<i>Argythamnia blodgettii</i>	Blodgett's wild-mercury; Blodgett's silverbush	C	E	Yes	Yes
<i>Byrsonima lucida</i>	Long Key locustberry		T	Yes	No
<i>Chamaecyce deltoidea</i>	deltoid spurge	E	E	Yes*	No
<i>Chaptalia albicans</i>	white sunbonnet		T	No	Yes
<i>Coccothrinax argentata</i>	Florida silver palm		T	Yes	Yes
<i>Crossopetalum ilicifolium</i>	christmasberry; quail-berry		T	Yes	Yes
<i>Koanophyllon villosum</i>	Florida shrub thoroughwort		E	Yes	Yes
<i>Lantana depressa</i>	pineland lantana; rockland shrubverbena		E	Yes	Yes
<i>Linum carteri</i> var. <i>carteri</i>	Carter's flax	C	E	Yes	No
<i>Myrcianthes fragrans</i>	Simpson's stopper		T	Yes	No
<i>Pteris bahamensis</i>	bahama ladder brake		T	Yes	No
<i>Rhynchosia parvifolia</i>	Small-leaf snoutbean		T	Yes	No
<i>Senna mexicana</i> var. <i>chapmanii</i>	Chapman's wild sensitive plant		T	Yes	Yes
<i>Smilax havanensis</i>	Everglades greenbrier		T	Yes	Yes
<i>Tetrazygia bicolor</i>	tetrazygia		T	Yes	Yes
<i>Tillandsia fasciculata</i>	cardinal airplant		E	Yes	No
<i>Tragia saxicola</i>	Key West noseburn		T	Yes	No
<i>Zamia pumila</i>	coontie		CE	Yes	Yes

* Observed approximately 150 feet beyond the limits of construction for the widest build alternative (Alternative 3).
E = Endangered; T = Threatened; C = Federal Candidate Species; CE = Commercially Exploited

In addition, coordination has been conducted with the Miami-Dade DRER EMRD EEL Program and the Miami-Dade County Park and Recreation Department Natural Areas Management Program (today known as MDPROS). To date, three meetings have been held with EEL and MDPROS representatives to discuss the Krome Avenue PD&E project, which are discussed in detail in [Section 4.3.12.1](#).

A Draft Ten-Year Land Management Plan for this parcel was prepared in 2008 and, as of 2013, is in the process of being reviewed by the EEL Program and the Miami-Dade County Board of County Commissioners to guide the future management of the land with regards to the use, restoration, and maintenance of its environmental values.



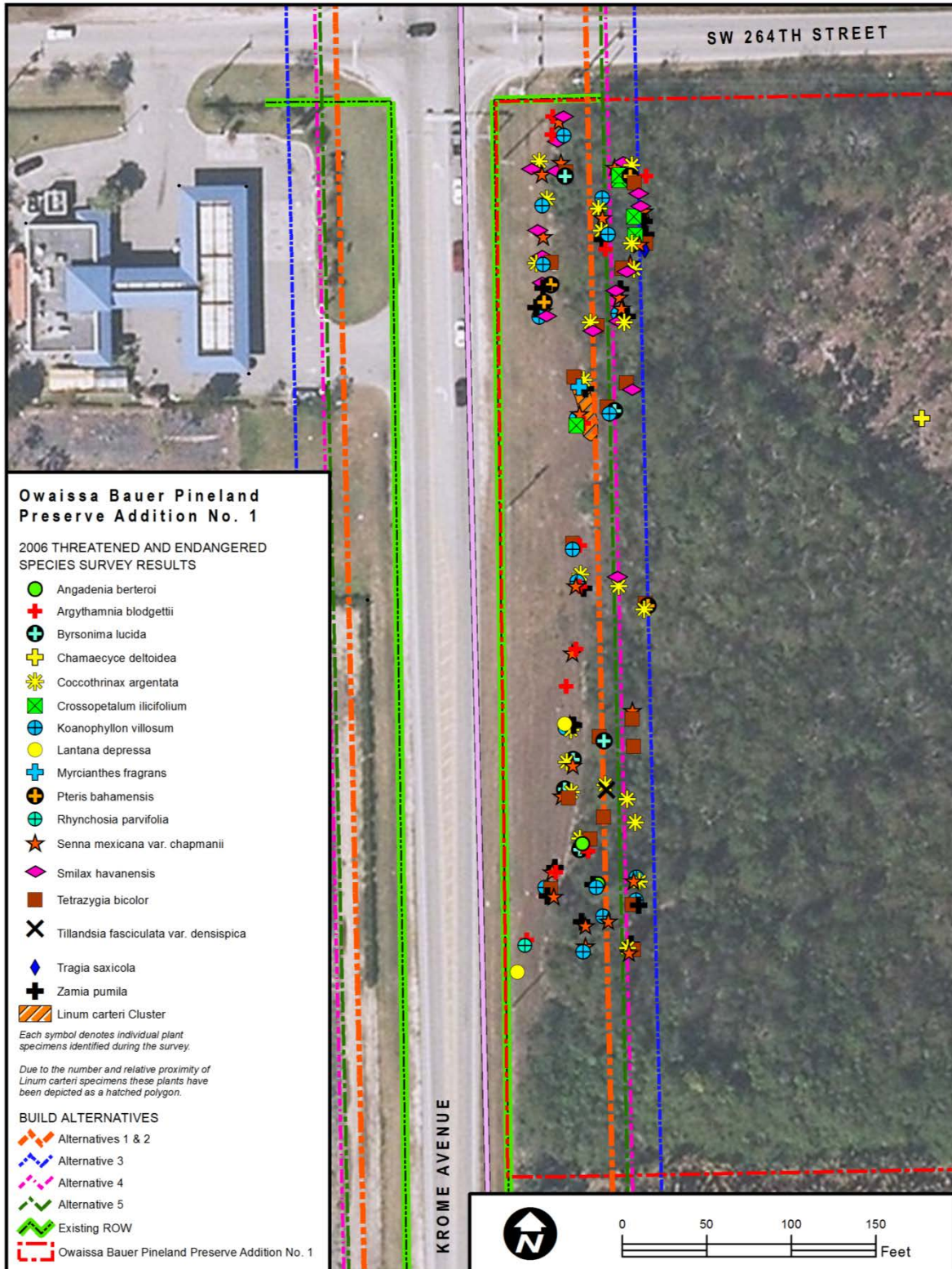


Figure 3-14 – Owaissa Bauer Pineland Preserve Addition No. 1 Plant Survey Results (2006)
Overlaid with the Build Alternatives



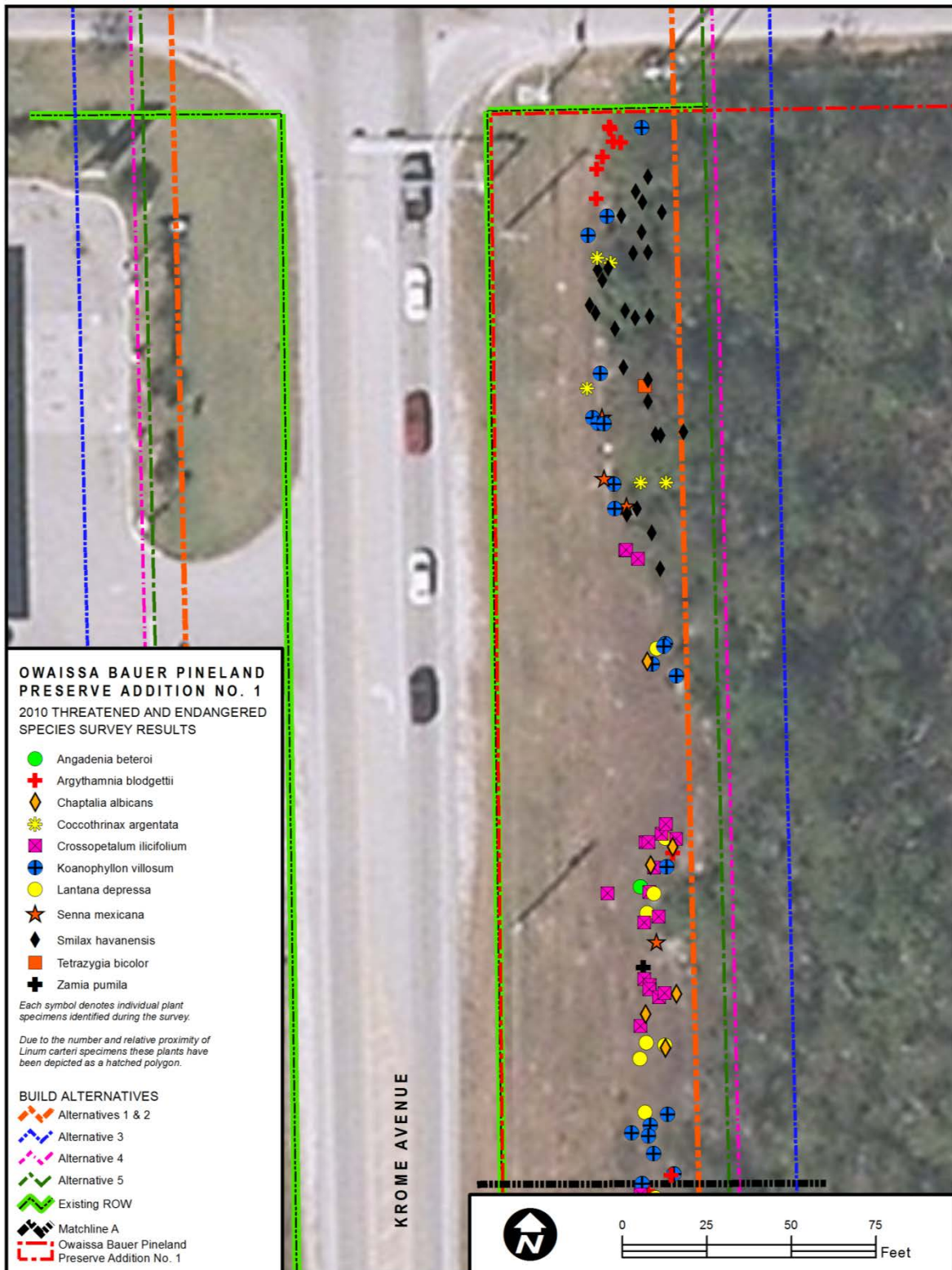


Figure 3-15a – Owaissa Bauer Pineland Preserve Addition No. 1 Plant Survey Results (2010)
Overlaid with the Build Alternatives



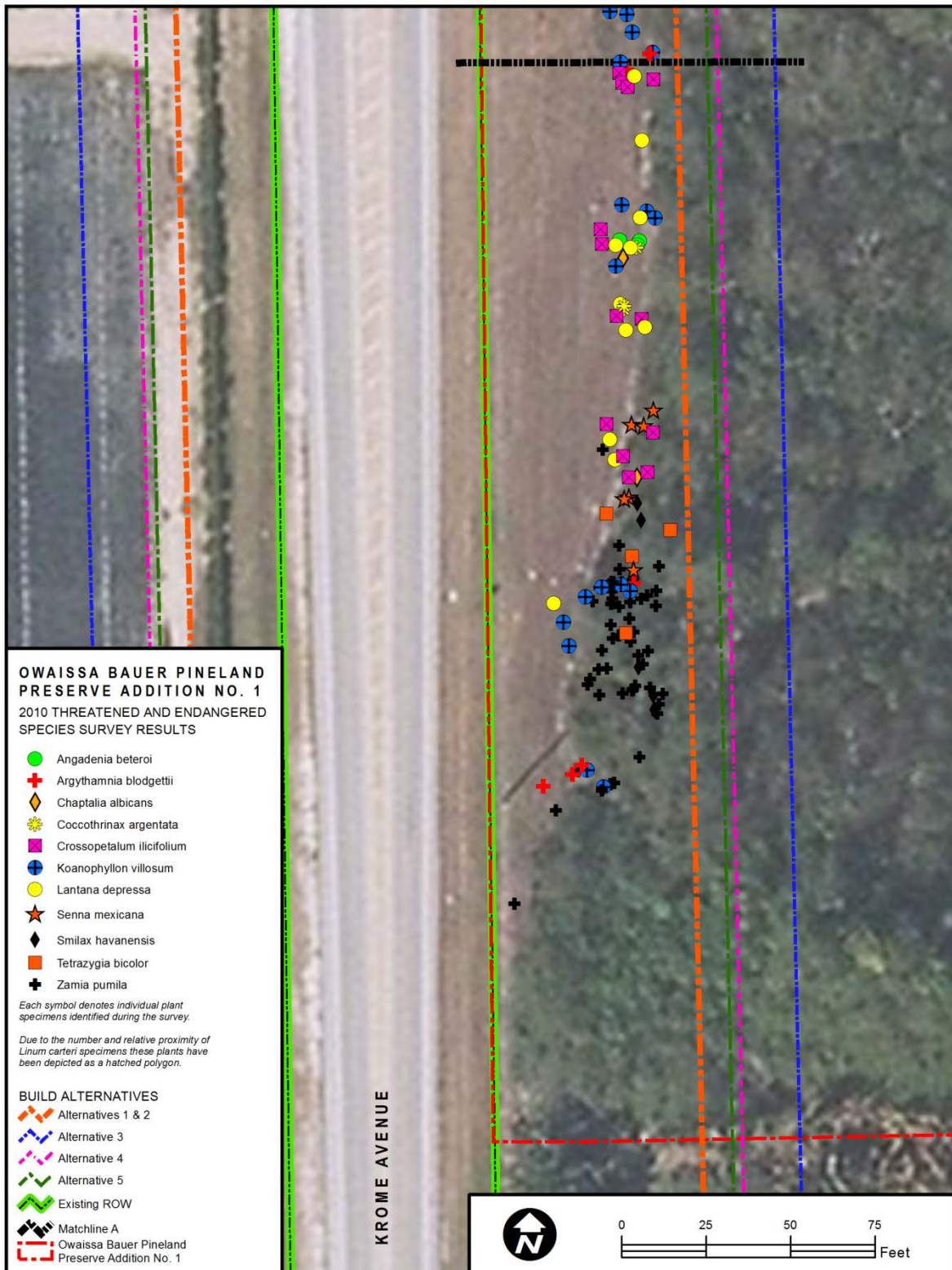


Figure 3-15b – Owaissa Bauer Pineland Preserve Addition No. 1 Plant Survey Results (2010)
Overlaid with the Build Alternatives





3.3.12.6 Other Notable Sites with No Special Designation

Florida Audubon Society Property

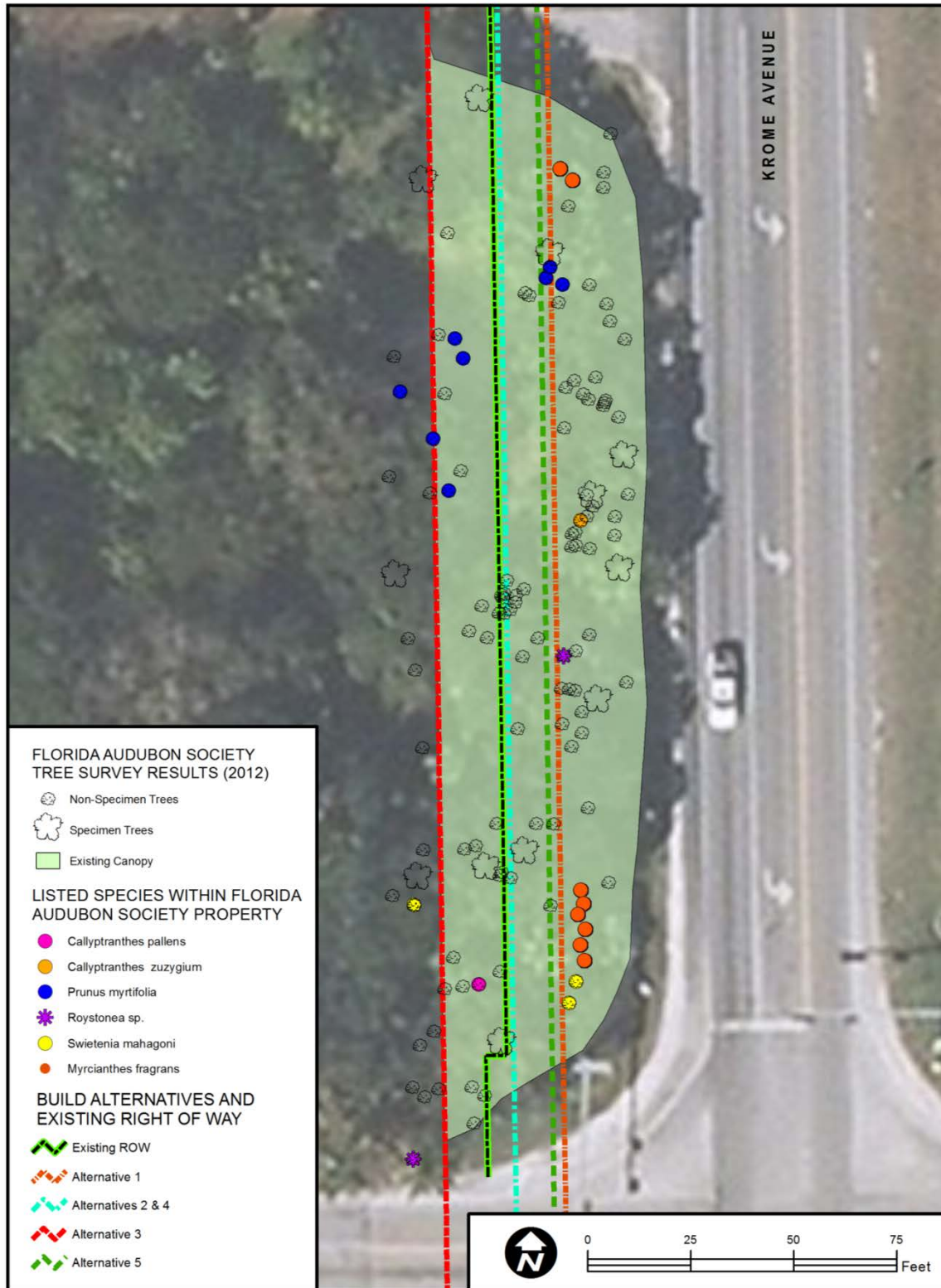
The Florida Audubon Society owns a two-acre unmarked/undesignated private property, which is located on the west side of the southern end of the Krome Avenue study corridor just north of SW 296th Street/Avocado Drive (Miami-Dade County Folio Number 30-7801-000-0583). The Florida Audubon Society property has no special land use designation (i.e., park, preserve, etc.); however, the Florida Audubon Society has designated the site as a bird watching location. There are no public facilities or managed trails at this site. In addition, the site does not appear to be actively managed and has both native and exotic species growing throughout. Although the property is overgrown, several state-listed plant species exist within its limits, which appear to have been planted in order to attract birds and butterflies for viewing purposes. A detailed tree survey and protected plant species survey was conducted in January 2012, on the property within the limits of the proposed build alternatives for this project. The results of the protected plant species survey are shown in *Table 3-9*. The results of the tree survey and protected plant species survey are depicted on *Figure 3-16*.

Table 3-9 – Protected Plants Observed Within the Florida Audubon Society Property (2012)

Scientific Name	Vernacular Name	Status
<i>Callyptranthes pallens</i>	spicewood	Threatened (FL)
<i>Callyptranthes zuzygium</i>	myrtle-of-the-river	Endangered (FL)
<i>Myrcianthes fragrans</i>	Simpson stopper	Threatened (FL)
<i>Prunus myrtifolia</i>	West Indian cherry	Threatened (FL)
<i>Roystonea regia</i>	royal palm	Endangered (FL)
<i>Swietenia mahagoni</i>	West Indian mahogany	Threatened (FL)

Source: Plants in the Preservation of Native Flora of Florida Act. Chapter 5B-40, FAC. 1998, amended.





**Figure 3-16 – Florida Audubon Society Property
Tree Survey and Protected Plant Species Survey Results (2012)**





3.3.13 Essential Fish Habitat

The proposed project does not involve any areas designated as Essential Fish Habitat; therefore, coordination per the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1801 et seq.) does not apply to this project.

3.3.14 Farmlands

In accordance with the Farmland Protection Policy Act of 1984 and the FDOT *PD&E Manual*, Part 2, Chapter 28 – Farmlands (dated May 11, 2010), a farmlands assessment was prepared for this project and submitted to the Natural Resource Conservation Service (NRCS) State Soil Scientist to address proposed farmland impacts associated with right-of-way acquisition.

The Krome Avenue study corridor traverses farming and low-density residential communities. The agricultural land uses include row crop agricultural fields, fruit tree orchards, herbaceous ornamental fields, and woody ornamental and fruit tree nurseries. Some of the crop types that exist along the corridor are tomato, avocado, mango, corn, squash, and sweet potato as well as other fruit and vegetable crops. The agricultural fields also include seasonal “self-pick” fields with fruit/vegetable stands. Numerous nurseries specializing in various ornamental landscaping plants are interspersed along much of the southern stretch of the study corridor; most are open to the public with direct access onto Krome Avenue. The majority of the farmlands along the corridor are commercially owned. No migrant camps were observed within the study area. A more detailed description of non-farmlands land use along the study corridor is discussed in [Section 3.1.5](#).

Farming is actively practiced within the existing FDOT roadway right-of-way and directly adjacent to the Krome Avenue roadway corridor. Those areas currently farmed within the existing FDOT roadway right-of-way are designated as transportation land use and not agricultural land use.





4.0 ENVIRONMENTAL CONSEQUENCES

Environmental consequences have been considered for the No-Build Alternative and the five build alternatives. The results of the environmental impact analyses are discussed in the following sections. Indirect and cumulative impacts are discussed in [Section 4.3.17](#) and [Section 4.3.18](#), respectively.

4.1 SOCIAL AND ECONOMIC IMPACTS

This project has been developed in compliance with FDOT's nondiscrimination program. In accordance with 23 CFR Part 200 and 49 CFR Part 21, the FDOT will not discriminate on the basis of race, color, national origin, sex, age, handicap/ disability or income status. No person may be treated unfavorably, excluded from participating in or denied the benefits of any FDOT program or activity because of their race, color, national origin, age, sex, handicap/disability, or income status. The FDOT will not retaliate against any person who complains of discrimination or who participates in an investigation of discrimination.

The environmental analyses conducted for this project and the conclusion reached and presented in this document were conducted in accordance with applicable laws, regulations, and FDOT policies, regardless of race, color, national origin, age, sex, handicap/disability, or income status. The FDOT does not anticipate a disproportionate impact on any of these populations as a result of this project.

4.1.1 Population and Community Growth Characteristics

This project is not anticipated to cause any direct effects to population and community growth characteristics. The project utilizes the existing heavily-traveled Krome Avenue roadway corridor. A great majority of the areas surrounding the project corridor are located outside the Miami-Dade County UDB. The UDB discourages urban sprawl and protect lands designated as agriculture. Additional development restrictions in the area include lot size requirements and residential development density restrictions. Due to the combination of these factors, community characteristics such as population, population growth rate, median age, and persons per household are not expected to be directly affected by any of the build alternatives. Potential indirect impacts of the Krome Avenue project, including the limited potential for growth inducing effects, are discussed in [Section 4.3.17](#).

4.1.2 Economic Conditions

The project is not anticipated to cause any direct effect to economic conditions in the project area. Economic development is not a project purpose. Economic growth and the business activities in the project corridor are dependent upon the policies in and implementation of the Miami Dade CDMP for the area. Land uses along the corridor are not determined by the project but by the CDMP. The project itself will cause no changes in land use along the corridor. There is likely to be a collateral economic growth benefit from a safer, more efficient roadway. Given the growth management constraints in place in the CDMP and the effects of the Access





Management Plan for the corridor, economic growth from land use changes is not anticipated. Removal of existing safety and capacity constraints would benefit existing land uses and businesses.

The urban development boundary in the CDMP and the policies intended to restrict its expansion and to focus future growth within the urban development boundary serve as the primary sprawl and growth constraints governing growth in the project corridor area. A discussion of the efficacy of the CDMP in limiting growth is discussed in [Section 4.3.17](#), dealing with indirect impacts.

Potential collateral economic impacts that may occur as a result of the Krome Avenue project include changes in economic growth and business activities. These impacts are typically related to changes in the accessibility of an area and would be the same for all five of the build alternatives. However, the project utilizes the existing heavily-traveled Krome Avenue roadway corridor, which already provides access to the existing businesses along the corridor. Therefore, these potential economic effects would be anticipated to be negligible to minor and beneficial to businesses and the surrounding community.

4.1.3 Community Services

Right-of-way needs for each of the five build alternatives would result in the acquisition of a narrow strip of land fronting four existing community churches/religious institutions. [Table 4-1](#) shows the proposed impacts to each affected community facility per each build alternative.

Table 4-1 – Community Service Facility Impacts

Facility Name	Facility Location	Build Alternative	Impacts (acres)
Redland Church of the Nazarene	22755 SW 177 th Avenue	Alternative 1	1.096
		Alternative 2	1.096
		Alternative 3	1.627
		Alternative 4	1.315
		Alternative 5	1.096
First Baptist Church of Homestead	29050 SW 177 th Avenue	Alternative 1	0.187
		Alternative 2	0.187
		Alternative 3	0.406
		Alternative 4	0.277
		Alternative 5	0.242
Homestead Church of Christ and Redland Christian Academy	17700 SW 280 th Street	Alternative 1	0.000
		Alternative 2	0.000
		Alternative 3	0.120
		Alternative 4	0.000
		Alternative 5	0.000

Alternatives 1 and 2 would result in the least total impacts to these facilities (1.283 acres); Alternative 5 would result in 1.338 acres of impacts; Alternative 4 would result in 1.592 acres of impacts; and Alternative 3 would result in the greatest acreage of impacts (2.153 acres). The portion of each community church/religious institution land parcel to be acquired would not





result in any adverse impacts to existing facility improvements (i.e., buildings, parking areas, etc.). Therefore, the proposed acquisition is not anticipated to cause any adverse impacts to the facilities' operations. In addition, no impacts to the remaining existing schools, fire and police protection facilities, medical and emergency operation facilities, or other public buildings/facilities would occur.

In coordination letter from Miami-Dade County Public Schools (dated November 6, 2012), the chief facilities officer requested that the FDOT contact Miami-Dade County Public Schools district staff once the project reaches the design phase so that staff can meet with the FDOT "to discuss the maintenance of traffic and other measures to ensure the safety of student pedestrians and to help minimize disruptions to school operations, including bus transportation." The FDOT will initiate this coordination with Miami-Dade County Public Schools staff when the project reaches the design phase. A copy of the coordination letter from Miami-Dade County Public Schools (dated November 6, 2012) is included in [Appendix J](#).

Thus, no major adverse impacts to any community service facilities are anticipated as a result of the proposed build alternatives. Furthermore, the proposed shared-use path (further discussed in [Section 4.3.1](#)) associated with the improvements to Krome Avenue is anticipated to enhance the community services in the project area.

4.1.4 Community Cohesion

Civil Rights impacts to minorities, low income populations, and other groups as a result of the proposed improvements to Krome Avenue have been fully considered. A review of the demographic information available from the U.S. Census indicates that the project is not anticipated to result in disproportionate impacts to racial or ethnic minority, and, or low income populations. The project area has a similar proportion of ethnic minority populations (60%) as Miami-Dade County (65%). As previously mentioned, the ethnic minority population in Miami-Dade is significantly greater than the State's (14.2%). Ethnic minorities within the census tracts that intersect the corridor are higher than those of the county and the project area at 83 percent, and was anticipated as the tracts include large farming communities. Additionally, the project area has a median household income of \$64,453, with about ten percent of the population living below the poverty level, which is significantly higher than the State's and County's. The project area has a lower proportion of low-income populations than the Miami-Dade County and the state of Florida (13.8 percent).

This project has been developed in accordance with the Civil Rights Act of 1964, as amended by the Civil Rights Act of 1968. To fully comply with Title VI of the Civil Rights Act of 1964, a Public Involvement Program was undertaken, as documented in the Public Involvement Program record for the project. Furthermore, coordination with the District Title VI coordinator has taken place to fully comply with Title VI and the Americans with Disabilities Act and address any concerns.

The proposed improvements considered under the five proposed alternatives take advantage of the existing Krome Avenue corridor; therefore, the existing neighborhoods adjoining this





corridor will not be further divided. In addition, no social isolation will occur and no major adverse impacts to local or regional traffic patterns are anticipated for any of the build alternatives; however, north- and southbound access modifications will occur as a result of the four-laning of Krome Avenue.

The need for improvements on this corridor is based on a combination of safety, physical and functional deficiencies within the corridor plus overall capacity needs. The primary objective of the project is to address safety deficiencies along this section of the Krome Avenue corridor. The secondary objectives of the project are to provide additional capacity to accommodate anticipated future area travel demand and to address other design deficiencies along the roadway. Additional secondary objectives include maintaining the effectiveness of the corridor as an emergency evacuation route and improving regional connectivity. Therefore, the mobility along this corridor is anticipated to be enhanced as a result of this project.

No specific ethnic groups or minority populations will become socially or culturally isolated as a result of the improvements and no adverse impacts to community cohesion are anticipated for any of the build alternatives.

Relocations

All of the build alternatives will require acquisition of additional right-of-way along the study corridor. A breakdown of the required relocations caused by this right-of-way acquisition has been provided in *Table 4-2*. In general, the proposed project, depending on the alternative chosen, will cause the relocation of properties ranging from four to ten residences, three to six businesses, and one to four personal properties. The FDOT does not anticipate a disproportionate impact on minority or low income communities as a result of these relocations.

The FDOT will carry out a right-of-way and relocation program in accordance with Florida Statute 339.09 and the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646, as amended by Public Law 100-17). The brochures that describe in detail the Department's relocation assistance program and right-of-way acquisition program are "Your Relocation: Residential," "Your Relocation: Business, Farms, and Nonprofit Organizations," "Your Relocation: Signs," and "The Real Estate Acquisition Process." All of these brochures are distributed at all public hearings and made available upon request to any interested persons.

Table 4-2 – Potential Relocations and Right-of-Way Acquisition Cost per Build Alternative

Alternative	Number of Parcels Impacted	Relocations			Right-of-Way Cost
		Residential	Business	Personal Property Only	
Alternative 1	139	4	3	4	\$62,518,300
Alternative 2	140	5	4	2	\$63,474,500
Alternative 3	216	10	6	2	\$105,248,800
Alternative 4	161	5	5	1	\$74,064,500
Alternative 5	154	5	4	1	\$66,948,200





4.1.5 Land Use

No land use changes will occur with any of the build alternatives to Oak Creek Park, Kings Grant Park, Redland Fruit and Spice Park, Camp Owaissa Bauer (including the Everglades Archery Range), Owaissa Bauer Pineland Preserve Addition No. 2, Owaissa Bauer Pineland Preserve Addition No. 3, or the Miami Rockridge Pinelands (including Ingram Pineland) due to their distance from the Krome Avenue study corridor.

Due to the presence of protected plant resources at Owaissa Bauer Pineland Preserve Addition No. 1, impacts to this parcel are discussed in [Section 4.3.12.1](#). Since the impact area of this parcel has been substantially reduced and most of the parcel will remain intact, the land use impact is anticipated to be minor.

Due to the presence of protected plant resources at the Florida Audubon Society property, impacts to this parcel are discussed in [Section 4.3.12.2](#). Only Alternative 3, with the widest typical section, encroaches into this parcel. Since most or all of this parcel will remain intact depending upon which alternative is selected, the land use impact is anticipated to be minor.

The unimproved SFWMD canal maintenance access roads along the C-102/Princeton and C-103/Mowry canals are discussed in [Section 4.3.1](#). No change in land use is anticipated along these access roads.

Due to its status as a NRHP-eligible resource, impacts to the Redland Golf and Country Club are discussed in [Section 4.2.1.2](#). No change in land use is anticipated at this location, with the exception of minor right-of-way acquisition.

The proposed improvements to Krome Avenue are consistent with the four-lane facility identified in the Transportation Element of the Miami-Dade County Comprehensive Development Master Plan (CDMP).. No major adverse impacts to existing land uses are anticipated as a result of the proposed project. Additional information regarding the potential indirect effects to land use is provided in [Section 4.3.17](#).

4.1.6 Utilities and Railroads

4.1.6.1 Utilities

All build alternatives will result in the same degree of impacts to existing utilities as they are either within or are very close to the existing roadway corridor. The overhead Florida Power & Light power lines will need to be relocated to the proposed right-of-way line for all build alternatives. Coordination with Florida Power & Light will continue during the design phase of the project.





4.1.6.2 Lighting

As part of this project, lighting has been proposed only at signalized intersections. Based on public input during the Citizen's Advisory Committee meetings, the stakeholders indicated their desire to not have lighting along the entire corridor. The existing lighting located at some of the intersections within the corridor will require relocation since widening will occur with the proposed improvements. New lighting is only being proposed at intersections that current do not have lighting.

4.1.6.3 Railroads

No adverse impacts are anticipated to occur to the existing CSX Transportation railroad crossing as a result of any of the build alternatives. Coordination with CSX Transportation will continue during the design phase of the project. Due to its status as a NRHP-eligible resource, impacts to this railroad crossing are also discussed in [Section 4.2.1.2](#).

4.2 CULTURAL AND HISTORICAL RESOURCES IMPACTS

4.2.1 Archeological and Historical

A CRAS was completed in 2005 for this project in accordance with the procedures contained in 36 CFR Part 800 and in accordance with the FDOT *PD&E Manual*, Part 2, Chapter 12 – Archeological and Historical Resources (dated January 12, 1999). An addendum to the CRAS was prepared in 2012. For additional information regarding cultural and historical resources impacts, please refer to the CRAS, which is on file at the FDOT District Six offices in Miami, Florida and is incorporated by reference.

4.2.1.1 Archeological Resources

The archeological investigations conducted as part of the CRAS and the CRAS Addendum did not identify any archeological resources and indicated that the potential for the recovery of important archeological information from the current project area is low. Consequently, there are no archeological sites eligible for listing in the NRHP or otherwise of regional or local significance that will be affected by the construction of the proposed project under any alternative. No further archeological work is recommended.

4.2.1.2 Historical Resources

The CRAS conducted in 2005 identified three historic resources, which were determined to be eligible for listing on the NRHP: the Howard Schaff Residence (8DA9674), the Clarence J. Parman Residence (8DA9675), and the Redland Golf Course (8DA10051). The CRAS Addendum prepared in 2012 identified one additional historic resource, the Seaboard Air Line (CSX) Railroad (8DA10753), which was determined to be eligible for listing on the NRHP. For all of the build alternatives, no air quality impacts will occur that may adversely impact the NRHP-eligible resources. The existing vehicular access to the residences and golf course (as well





as parking) will not be impacted. For the Seaboard Air Line (CSX) Railroad, the railroad will continue to convey its historic route and function. A more detailed impacts discussion for each of the sites is included below.

Howard Schaff Residence, 27450 SW 177th Avenue (8DA9674) and Clarence J. Parman Residence, 27250 SW 177th Avenue (8DA9675)

At the locations of the two significant residences, the Howard Schaff Residence/27450 SW 177th Avenue (8DA9674) and the Clarence J. Parman Residence/27250 SW 177th Avenue (8DA9675), all work will be occurring within the existing right-of-way for Alternatives 1, 2, 4, and 5, and there will be no adverse effect to the resources. A small acquisition of right-of-way from the residences is necessary for Alternative 3; however, due to the large distance from the roadway to the residences, they will not be adversely affected by the proposed improvements. A noise analysis was undertaken for both residences, and based on the predicted noise levels and the assumed conditions, use of the interior spaces of the residences will not be impacted by the project. Exterior noise impacts would occur at the Clarence J. Parman Residence, but no exterior noise impacts are predicted at the Howard Schaff Residence. A noise barrier evaluation was conducted for the Parman residence, and although it appeared that it would be feasible to construct a noise barrier for this home, it was not considered reasonable since it would not be possible to reduce noise levels by the FDOT's minimum noise level reduction criteria [at least seven dB(A)]. Additionally, construction of a noise barrier in front of the Clarence J. Parman Residence would likely result in an adverse effect due the changes to the viewshed to and from the resource. Thus, according to FHWA and FDOT criteria, this noise barrier was not recommended for further consideration and noise impacts at the exterior of the Parman residence are considered to be an unavoidable consequence of the project.

Alternative 3 would also require removal of the large mango trees in front of the Howard Schaff Residence, which would result in an adverse effect. However, alternatives 1, 2, 4, and 5 would not require removal of the large mango trees and would not have an adverse impact on the Howard Schaff Residence. Therefore, the FDOT and FHWA have determined that there will be no adverse effect to the Howard Schaff Residence/27450 SW 177th Avenue (8DA9674) and the Clarence J. Parman Residence/27250 SW 177th Avenue (8DA9675) for alternative 1, 2, 4, and 5; Alternative 3 would result in an adverse effect to the Howard Schaff Residence.

Redland Golf Course (8DA10051)

A small portion of right-of-way from the Redland Golf Course (8DA10051) is required as part of the proposed improvements for Alternatives 1, 2, 3, 4, and 5. With the exception of this area of right-of-way acquisition, the improvements for the build alternatives will all take place within the existing right-of-way at the golf course and there will be no alterations to the physical dimensions or course layout as a result of the roadway improvements. Additionally, the noise analysis revealed that areas of frequent human use on the country club property would not be impacted by traffic noise due to the project. Therefore, the FDOT and FHWA have determined that there will be no adverse effect to the Redland Golf Course (8DA10051) as a result of Alternatives 1, 2, 3, 4, and 5.





Seaboard Air Line (CSX) Railroad (8DA10753)

Alternatives 1, 2, 3, 4, and 5 will require roadway construction and the installation of a shared path at the intersection of the Seaboard Air Line (CSX) Railroad (8DA10753) and Krome Avenue within the project area of potential effect. However, it is only to a small portion of the track within the overall CSX system that is comprised of hundreds of miles of track, the rail corridor will still be used for rail travel, and the overall route will remain unchanged. As a result of Alternatives 1, 2, 3, 4, and 5, the FDOT and FHWA have determined that there will be no adverse effect to the characteristics which qualify the Seaboard Air Line (CSX) Railroad (8DA10753) for listing in the National Register.

Determination of Effects

Based on information provided in the Section 106 Documentation and Determination of Effects Report prepared in 2005, the FHWA has determined that the proposed project improvements will have no adverse effect on the historic resources identified during the 2005 CRAS and subsequent 2012 CRAS Addendum, except for the removal of the large mango trees in front of the Howard Schaff Residence with implementation of Alternative 3; alternatives 1, 2, 4, and 5 would not require removal of the large mango trees and would not have an adverse impact on the Howard Schaff Residence or any of the other identified historic properties. The SHPO issued a concurrence letter for this project on May 7, 2007, concurring with FHWA's findings (see [*Appendix G*](#)). This letter included a request by the SHPO to review the *Noise Study Report* for this project in reference to potential historical resource impacts. Follow-up coordination was conducted with the SHPO in reference to reviewing the *Noise Study Report*, and the requested information was provided to the SHPO as part of the CRAS Addendum. Based on the information provided in the CRAS Addendum prepared in 2012, the SHPO issued a new concurrence letter on August 24, 2012, concurring with FHWA's updated findings (see [*Appendix G*](#)).

4.2.2 Section 4(f) Resources

Of the ten sites that were initially considered for potential Section 4(f) involvement in this study, five of these sites (Camp Owaissa Bauer/Everglades Archery Range, Owaissa Bauer Pineland Preserve Addition No. 2 and No. 3, and the SFWMD canal maintenance access roads) were not evaluated as potential Section 4(f) resources for the reasons discussed in the following section. Uses at the five remaining properties [Owaissa Bauer Pineland Preserve Addition No. 1, the Howard Schaff and Clarence J. Parman residences, the Redland Golf Course, and the Seaboard Air Line (CSX) Railroad] have the potential to be impacted by the proposed build alternatives.

Camp Owaissa Bauer (including the Everglades Archery Range), Owaissa Bauer Pineland Preserve Addition No. 2, and Owaissa Bauer Pineland Preserve Addition No. 3

Due to their distance from the Krome Avenue study corridor, no impacts would occur to Camp Owaissa Bauer (including the Everglades Archery Range), Owaissa Bauer Pineland Preserve





Addition No. 2, or Owaissa Bauer Pineland Preserve Addition No. 3. Therefore, these sites were not evaluated as potential Section 4(f) resources.

SFWMD Canal Maintenance Access Roads

The unimproved SFWMD canal maintenance access roads along the C-102/Princeton and C-103/Mowry canals are discussed in [Section 4.3.1](#). The Miami-Dade Open Space Master Plan Vision Map (dated November 11, 2009) shows both of these maintenance access roads, as potential future “greenways” in the Miami-Dade County Parks and Open Space Master Plan. However, the SFWMD, the owner of these canal maintenance access roads, has no plans at this time for development of these canal maintenance access roads for trail use. Due to their current status as SFWMD canal maintenance access roads, these access roads were not evaluated as potential Section 4(f) resources.

Owaissa Bauer Pineland Preserve Addition No. 1

A Section 4(f) Determination of Applicability was prepared for the Owaissa Bauer Pineland Preserve Addition No. 1 parcel. The Section 4(f) Determination of Applicability included a letter dated April 11, 2006, from the Miami-Dade County DERM (now DRER EMRD) to FDOT, which stated the Owaissa Bauer Pineland Preserve Addition No. 1 parcel is a “critically imperiled pine rockland, acquired for the purpose of conservation, that will function as a natural pine rockland preserve in perpetuity.” The FHWA reviewed the Section 4(f) Determination of Applicability and, in a letter to FDOT dated June 19, 2006, FHWA concurred that this property does not qualify as a Section 4(f) resource. Copies of DERM, FDOT, and FHWA correspondence letters regarding this Section 4(f) Determination of Applicability are provided in [Appendix K](#). The full Section 4(f) Determination of Applicability is on file at the FDOT District Six offices in Miami, Florida and is incorporated by reference. Due to the presence of protected plant resources at Owaissa Bauer Pineland Preserve Addition No. 1, impacts to this site are further discussed in [Section 4.3.12.1](#).

Howard Schaff Residence (8DA9674), Clarence J. Parman Residence (8DA9675), Redland Golf Course (8DA10051), and Seaboard Air Line (CSX) Railroad (8DA10753)

All of these resources and build alternative combinations received a Section 106 Determination of “No Adverse Effects,” with the exception of the Howard Schaff Residence for Alternative 3. As part of the interagency coordination, the FHWA made the SHPO aware of its intent to make a *de minimis* Section 4(f) finding for all properties and build alternatives that the SHPO concurred with as having “No Effect” or “No Adverse Effect” under Section 106 of the National Historic Preservation Act.

The FDOT has assessed the following historic properties based on each build alternative and, in concurrence with FHWA, has determined that there is no Section 4(f) use for the following resource/build alternative combinations:

- Clarence J. Parman Residence (8DA9675) for Alternatives 1, 2, 4, and 5
- Howard Schaff Residence (8DA9674) for Alternatives 1, 2, 4, and 5





All work in proximity to these resources for the identified build alternatives will occur inside the existing FDOT right-of-way. In addition, the SHPO has made a Determination of Effects finding of “No Adverse Effect” for all of these combinations.

Section 6009(a) of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, Pub. L. 109-59, amended existing Section 4(f) legislation at Section 138 of Title 23 and Section 303 of Title 49, United States Code, to simplify the processing and approval of projects that have only a *de minimis* finding on lands protected as a Section 4(f) resource. In accordance with this policy, the following build alternatives qualify for a *de minimis* finding for the following historic resources, based on limited right-of-way acquisition:

- Clarence J. Parman Residence (8DA9675) for Alternative 3
- Redland Golf Course (8DA10051) for Alternative 1 through 5
- Seaboard Air Line (CSX) Railroad (8DA10753) for Alternative 1 through 5

For the Clarence J. Parman Residence, the required strip of right-of-way will not result in any alterations to the features that contribute to the property’s eligibility for the NRHP. The residence will be approximately 65 feet from the edge of the roadway pavement as part of Alternative 3. The SHPO made a Section 106 Determination of “No Adverse Effect;” therefore this meets the qualifications for a *de minimis* finding under Section 4(f).

A strip of right-of-way is required from the 121-acre Redland Golf Course property. This strip, which also features a number of non-native trees, acts as a buffer between the golf course and the roadway and is located outside of the golf course’s existing fence. There will be no alterations to the physical dimensions of the historic, playable golf course property or course layout as a result of the roadway improvements and right-of-way acquisition. For all alternatives (including Alternative 3, which has the greatest impact, at 1.1 acres), the required strip of right-of-way represents less than 1% of the total area of the Redland Golf Course property. Therefore, this meets the qualifications for a *de minimis* finding under Section 4(f).

The right-of-way needed for this project across the Seaboard Air Line Railroad will similarly have no effect on the purpose or function of the resource. There will be no changes to the features which render it NRHP-eligible. The corridor is already a transportation facility and will continue to serve the same purpose after the project is completed. The SHPO made a Section 106 Determination of Effects finding of “No Adverse Effect” for all five build alternatives across this resource. Therefore, this meets the qualifications for a *de minimis* finding under Section 4(f).

While all build alternatives would move the roadway and associated traffic, noise, and visual impacts closer to the identified resources, none of them will be adversely affected by the project under Section 106 criteria/standards. As there are no indirect adverse effects to the resources, a constructive use impact evaluation under Section 4(f) is not applicable. Based on this information and the Section 106 determination of “No Adverse Effects” to these resources and concurrence by the SHPO (see [Appendix G](#) – SHPO Determination of Effects letter dated August 24, 2012), these activities meet the qualifications for a *de minimis* Section 4(f) finding.





The FHWA concurred with and approved the FDOT's recommendation of a Section 4(f) *de minimis* finding for these resources in an email dated August 28, 2013 (see [Appendix L](#)):

In reviewing the revised information, the SHPO concurrence letter, the previous information provided that includes the 2/7/13 responses to the FHWA De Minimis Questionnaire, our 7/14/13 teleconference to discuss the Section 4(f) impacts, and ... field review on 7/24/13 ... the [FHWA] has sufficient information at this time to determine that some of the alternatives will have only a de minimis Section 4(f) impact on some of the resources. Specifically, FHWA agrees with your recommendation and has determined that the following build alternatives, as proposed, will have a de Minimis impact under Section 4(f) for the following historic resources:

- *Clarence J. Parman Residence (8DA9675) for Alternative 3*
- *Redland Golf Course (8DA10051) for Alternative 1 to 5*
- *Seaboard Air Line (CSX) Railroad (8DA10753) for Alternative 1 to 5*

For the Howard Schaff Residence, Alternative 3 would require removal of the large mango trees in front of the residence. The FHWA has determined that removal of these trees constitutes an adverse effect under Section 106, and the SHPO has concurred with this finding (see [Appendix G](#) – SHPO Determination of Effects letter dated August 24, 2012). Removal of these trees would also constitute a Section 4(f) finding. Therefore, in order to move forward with Alternative 3, an Individual Section 4(f) Evaluation would need to be prepared to evaluate the Section 4(f) use caused by removal of these trees. However, Alternative 3 is not the FDOT recommended alternative for this project. If Alternative 3 is determined to be the FHWA preferred alternative for this project after the public hearing has occurred, an Individual Section 4(f) Evaluation will need to be prepared.

Table 4-3 summarizes the Section 4(f) use/findings recommended by FDOT and approved by FHWA.





Table 4-3 – Section 4(f) Use/Findings

	Clarence J Parman Residence	Howard Schaff Residence	Redland Golf Course	Seaboard Air Line Railroad (CSX)
Alternative 1	○ All roadway improvements would occur within the existing FDOT ROW at this location with no impacts to the resource and a Section 106 determination of No Adverse Effect; therefore this does not constitute a Section 4(f) use.	○ All roadway improvements would occur within the existing FDOT ROW at this location with no impacts to the resource and a Section 106 determination of No Adverse Effect; therefore this does not constitute a Section 4(f) use.	□ Roadway improvements would require 0.12 acres of ROW acquisition from this resource. A Section 106 determination of No Adverse Effect was made; therefore this meets the qualifications of a de minimis Section 4(f) finding.	□ Roadway improvements would require 0.150 acres of ROW acquisition from this resource. A Section 106 determination of No Adverse Effect was made; therefore this meets the qualifications of a de minimis Section 4(f) finding.
Alternative 2	○ All roadway improvements would occur within the existing FDOT ROW at this location with no impacts to the resource and a Section 106 determination of No Adverse Effect; therefore this does not constitute a Section 4(f) use.	○ All roadway improvements would occur within the existing FDOT ROW at this location with no impacts to the resource and a Section 106 determination of No Adverse Effect; therefore this does not constitute a Section 4(f) use.	□ Roadway improvements would require 0.12 acres of ROW acquisition from this resource. A Section 106 determination of No Adverse Effect was made; therefore this meets the qualifications of a de minimis Section 4(f) finding.	□ Roadway improvements would require 0.150 acres of ROW acquisition from this resource. A Section 106 determination of No Adverse Effect was made; therefore this meets the qualifications of a de minimis Section 4(f) finding.
Alternative 3	□ Roadway improvements would require 0.045 acres of ROW acquisition from this resource. A Section 106 determination of No Adverse Effect was made; therefore this meets the qualifications of a de minimis Section 4(f) finding.	△ Roadway improvements would require 0.260 acres of ROW acquisition from this resource and the removal of historic mango trees. This resulted in a Section 106 finding of Adverse Effect and therefore does not meet the qualifications of a de minimis Section 4(f) finding.	□ Roadway improvements would require 1.1 acres of ROW acquisition from this resource. A Section 106 determination of No Adverse Effect was made; therefore this meets the qualifications of a de minimis Section 4(f) finding ¹ .	□ Roadway improvements would require 0.412 acres of ROW acquisition from this resource. A Section 106 determination of No Adverse Effect was made; therefore this meets the qualifications of a de minimis Section 4(f) finding.
Alternative 4	○ All roadway improvements would occur within the existing FDOT ROW at this location with no impacts to the resource and a Section 106 determination of No Adverse Effect; therefore this does not constitute a Section 4(f) use.	○ All roadway improvements would occur within the existing FDOT ROW at this location with no impacts to the resource and a Section 106 determination of No Adverse Effect; therefore this does not constitute a Section 4(f) use.	□ Roadway improvements would require 0.32 acres of ROW acquisition from this resource. A Section 106 determination of No Adverse Effect was made; therefore this meets the qualifications of a de minimis Section 4(f) finding.	□ Roadway improvements would require 0.306 acres of ROW acquisition from this resource. No effect to functionality of the facility. A Section 106 determination of No Adverse Effect was made; therefore this meets the qualifications of a de minimis Section 4(f) finding.
Alternative 5	○ All roadway improvements would occur within the existing FDOT ROW at this location with no impacts to the resource and a Section 106 determination of No Adverse Effect; therefore this does not constitute a Section 4(f) use.	○ All roadway improvements would occur within the existing FDOT ROW at this location with no impacts to the resource and a Section 106 determination of No Adverse Effect; therefore this does not constitute a Section 4(f) use.	□ Roadway improvements would require 0.19 acres of ROW acquisition from this resource. A Section 106 determination of No Adverse Effect was made; therefore this meets the qualifications of a de minimis Section 4(f) finding.	□ Roadway improvements would require 0.288 acres of ROW acquisition from this resource. A Section 106 determination of No Adverse Effect was made; therefore this meets the qualifications of a de minimis Section 4(f) finding.

Legend:	
○	No Section 4(f) Use
□	De minimis Section 4(f) Finding
△	Individual Section 4(f) Evaluation

¹ The right-of-way required from the Redland Golf Course for Alternative 3 is a linear strip located outside of the golf course's existing fence. There will be no alterations to the features that contribute to this resource's National Register of Historic Places eligibility. The needed strip of right-of-way represents 0.9% of the total 121-acre Redland Golf Course property.

4.2.3 Recreational and Parklands

No impacts will occur with any of the build alternatives to Oak Creek Park, Kings Grant Park, Redland Fruit and Spice Park, or Camp Owaissa Bauer (including the Everglades Archery Range) due to their distance from the Krome Avenue study corridor.





The unimproved SFWMD canal maintenance access roads along the C-102/Princeton and C-103/Mowry canals are discussed in [Section 4.3.1](#).

Due to the presence of protected plant resources at the Florida Audubon Society property, impacts to this site are discussed in [Section 4.3.12.2](#).

Due to its status as a NRHP-eligible resource, impacts to the Redland Golf and Country Club are discussed in [Section 4.2.1.2](#).

4.3 NATURAL AND PHYSICAL RESOURCES IMPACTS

4.3.1 Bicycle and Pedestrian Facilities

No designated bicycle and/or pedestrian facilities currently exist along Krome Avenue or any of the adjacent side streets within the study limits. Additionally, there are no crosswalks and/or signalized pedestrian crossings at any of the existing signalized intersections in the study area. All build alternatives include a 10-foot wide two-way shared-use path along the west side of the Krome Avenue roadway corridor. In addition, all build alternatives include bicycle pavement markings on the paved shoulders in both directions. The shared-use path and bicycle pavement markings are anticipated to enhance bicycle and pedestrian use along the study corridor.

The unimproved SFWMD canal maintenance access roads along the C-102/Princeton and C-103/Mowry canals will experience minor impacts in the area of the proposed roadway improvements with all of the build alternatives. However, since these access roads will remain open following construction of the roadway improvements, these minor impacts are not anticipated to affect the use or function of these access roads.

There are no designated equestrian trails along the study corridor. A designated equestrian trail was considered as a potential design option during the early stages of project development; however, due to a lack of public interest during the public involvement process, this feature was excluded from the design of the five build alternatives evaluated in this document.

4.3.2 Visual / Aesthetics

The two historic structures which make use of architectural design elements [Howard Schaff Residence (8DA9674) and Clarence J. Parman Residence (8DA9675)] are discussed in [Section 4.2.1.2](#) due to their status as NRHP-eligible resources. Roadway improvements associated with all of the build alternatives will be at-grade; therefore, the views to or from these structures will not be diminished. Therefore, no visual/aesthetic impacts to these sites are anticipated as a result of the proposed project, with the exception of removal of the large mango trees in front of the Howard Schaff Residence for Alternative 3; alternatives 1, 2, 4, and 5 will not require removal of the large mango trees and will not cause a visual/aesthetic impact at this residence.

Due to its status as a NRHP-eligible resource, detailed impacts to the Redland Golf and Country Club are discussed in [Section 4.2.1.2](#). Roadway improvements associated with all of the build alternatives will be at-grade; therefore, the views to or from the Redland Golf and Country Club





will not be diminished. In addition, the SHPO requested that no trees to be removed that provide a visual barrier between the golf course and the roadway. Therefore, no visual/aesthetic impacts are anticipated as a result of the proposed project.

Due to the presence of protected plant resources at Owaissa Bauer Pineland Preserve Addition No. 1 and the Florida Audubon Society property, impacts to these parcels are discussed in [Section 4.3.12.1](#) and [Section 4.3.12.2](#), respectively. However, roadway improvements associated with all of the build alternatives will be at-grade; therefore, the views to or from these resources will not be diminished.

Along the southern portion of the corridor, three establishments were found to have active horse hitching posts, which provide evidence of the historically preserved rural character of Krome Avenue. These establishments will not be impacted as a result of the proposed roadway improvement project; therefore, no visual/aesthetic impacts are anticipated at these locations.

The study corridor will be enhanced by the proposed roadway improvements (i.e., new asphalt pavement, new pavement markings, new signage, improved drainage and grassed areas in the median and swales, as well as a newly constructed shared-use path). Additionally, the proposed project does not add any urban-like characteristics to the corridor, such as curb and gutter, new traffic signals, or additional streetlights.

This corridor shows unique natural scenery provided by a large number of landscaping and fruit plant nurseries abutting both sides of the road. The potential inclusion of landscaping elements along the roadway will be made during the design phase of the project, keeping in mind the rural ambiance of the area and right-of-way restrictions along the corridor.

4.3.3 Air Quality

In accordance with applicable FHWA guidelines and guidelines contained in the FDOT *PD&E Manual*, Part 2, Chapter 16 – Air Quality Analysis (dated September 13, 2006), potential air quality impacts in the area surrounding the project corridor were assessed for all viable project alternatives, including the No-Build Alternative. An *Air Quality Technical Memorandum* was prepared, which is on file at the FDOT District Six offices in Miami, Florida and is incorporated by reference.

The results of the screening test for the default receptor sites 1 through 20 for both the Build and No-Build alternatives are shown in [Table 4-4](#). In summary, the worst-case opening year (2020) results at the CO Florida 2012 default receptor sites indicate that the project will have a maximum one-hour CO concentration of 5.9 PPM at Default Receptors 3, 8, 13, and 18, and a maximum eight-hour CO concentration of 3.5 PPM, also at Receptors 3, 8, 13, and 18. The worst-case design year (2040) results indicate that the project will have a maximum one-hour CO concentration of 5.7 PPM at Default Receptors 3, 8, 13, and 18, and a maximum eight-hour CO concentration of 3.4 PPM, also at Default Receptors 3, 8, 13, and 18. These results are based on the CO Florida 2012 model's default receptors; the concentrations at any actual receptors would be equal to or less than the concentrations calculated for the default receptors.





Table 4-4 – Carbon Monoxide Concentrations

Default Receptor No.	Maximum One-Hour CO Concentration (PPM)				Maximum Eight-Hour CO Concentration (PPM)			
	2020		2040		2020		2040	
	No-Build	Build	No-Build	Build	No-Build	Build	No-Build	Build
1	4.9	5.5	N/A ¹	5.3	2.9	3.3	N/A ¹	3.2
2	5.0	5.6	N/A	5.4	3.0	3.4	N/A	3.2
3	5.2	5.9	N/A	5.7	3.1	3.5	N/A	3.4
4	4.8	5.5	N/A	5.2	2.9	3.3	N/A	3.1
5	4.5	4.9	N/A	4.7	2.7	2.9	N/A	2.8
6	4.8	5.5	N/A	5.3	2.9	3.3	N/A	3.2
7	5.0	5.6	N/A	5.4	3.0	3.4	N/A	3.2
8	5.2	5.9	N/A	5.7	3.1	3.5	N/A	3.4
9	4.7	5.4	N/A	5.2	2.8	3.2	N/A	3.1
10	4.6	4.9	N/A	4.7	2.8	2.9	N/A	2.8
11	4.9	5.5	N/A	5.3	2.9	3.3	N/A	3.2
12	5.1	5.7	N/A	5.4	3.1	3.4	N/A	3.2
13	5.2	5.9	N/A	5.7	3.1	3.5	N/A	3.4
14	4.7	5.4	N/A	5.2	2.8	3.2	N/A	3.1
15	4.5	4.9	N/A	4.7	2.7	2.9	N/A	2.8
16	4.8	5.5	N/A	5.3	2.9	3.3	N/A	3.2
17	5.0	5.7	N/A	5.4	3.0	3.4	N/A	3.2
18	5.2	5.9	N/A	5.7	3.1	3.5	N/A	3.4
19	4.8	5.4	N/A	5.2	2.9	3.2	N/A	3.1
20	4.5	5.0	N/A	4.7	2.7	3.0	N/A	2.8

Notes: ¹ = No traffic data are available for the 2040 No-Build Alternative.

NAAQS for Carbon Monoxide - 35 PPM (one-hour concentration) and 9 PPM (eight-hour concentration).

The results of the CO screening analysis indicate that the proposed project is not expected to cause an exceedance of the one-hour or eight-hour NAAQS for CO (35 PPM and 9 PPM, respectively). The project passes the CO screening analysis, and air quality impacts resulting from the proposed project are not expected.

4.3.3.1 Construction

Construction activities for the proposed action may potentially have short-term air quality impacts within the immediate vicinity of the project. Construction activities may generate temporary increases in air pollutant emissions in the form of dust from earthwork and unpaved roads and smoke from open burning. Such emissions and potential impacts will be minimized by adherence to all applicable state and local regulations and to the latest edition of the FDOT *Standard Specifications for Road and Bridge Construction*. Construction impacts from the Krome Avenue project are discussed further in [Section 4.3.15](#).

4.3.3.2 Agency Coordination

As of June 2005, Miami-Dade County has been designated as in attainment for all of the NAAQS under the criteria provided in the Clean Air Act. This project is also included in the





area's Transportation Improvement Program that has been approved by the Miami-Dade Metropolitan Planning Organization. Therefore, the project is located in an area which is designated as in attainment under the criteria provided in the Clean Air Act; the Clean Air Act conformity requirements do not apply to the project.

Agency coordination for this project occurred through the ETDM Planning and Program Screening, and the AN process. The ETDM review occurred between May 22, 2006, and July 6, 2006, and the most recent ETDM Programming Screen Summary Report was published on September 20, 2010. AN comments were received from the U.S. Department of Health and Human Services. ETDM comments were received from the USEPA, which assigned a Degree of Effect of 'Minimal' for air quality. These comments have been addressed in the *Air Quality Technical Memorandum*. No adverse comments regarding air quality were received. The Summary Degree of Effect for air quality was assigned as 'None.' Additionally, the ETDM Programming Screen Summary Report listed the project as "Consistent with Air Quality Conformity." The ETDM Summary Report is provided in [Appendix V](#). There will be additional opportunity for agency review and comment during the *Draft Environmental Impact Statement* review period.

4.3.4 Noise

In accordance with Title 23 Code of Federal Regulations (CFR) Part 772, *Procedures for Abatement of Highway Traffic Noise and Construction Noise* (July 13, 2010), and using the methodology established in the FDOT *PD&E Manual*, Part 2, Chapter 17 – Noise (dated May 24, 2011), an assessment of noise impacts has been conducted for the proposed improvements and is documented in the *Noise Study Report*, which is available for review at the FDOT District Six offices in Miami, Florida and is incorporated by reference. The *Noise Study Report* documents the effect of the proposed project on traffic noise levels. Specifically, traffic noise levels were evaluated and predicted at sensitive sites and noise abatement was considered for the build alternatives.

Prior to conducting a detailed noise analysis, a desk-top review was performed to determine if noise levels will likely increase as a result of the project, if noise sensitive receptor sites are within the project area, or if noise impacts are likely to occur. The desk-top review indicated that the proposed improvements were likely to increase traffic noise levels or cause design year (2040)¹¹ noise levels to approach or exceed the FHWA NAC at noise sensitive sites along the project corridor. Therefore, a more detailed noise analysis was performed. Predicted noise levels for individual model receptors are presented in [Table 4-5](#) located at the end of this section. The receptor locations are depicted on [Figures 4-1a](#) through [4-1f](#) located at the end of this section. More specific noise level data may be found in the *Noise Study Report*.

The project study area is generally suburban to the south and increasingly agricultural to the north. Most of the homes are located far apart from each other, on large lots. Relatively few of the homes are located in subdivisions. Forty-six residences that have the potential for noise

¹¹ The design year 2040 is based on an opening year of 2020.





impacts due to the proposed improvements were identified along the corridor. Two of these residences, the Howard Schaff Residence (27450 SW 177th Avenue) and Clarence J. Parman Residence (27250 SW 177th Avenue), are eligible for listing on the NRHP (also discussed in [Section 3.2.1.2](#)). Non-residential sites with potential to be impacted by the project included three churches, outdoor seating areas at three restaurants, the Grove Inn Country Guesthouse, and a pool at the Redland Country Club. The Florida Audubon Society owns a two-acre unmarked/undesignated parcel, which is located on the west side of Krome Avenue just north of SW 296th Street, near the southern end of the project corridor. This site has no special land use designation (i.e., park, preserve, etc.); however, the land owner has designated the parcel as a bird watching site. There are no public facilities or managed trails at this site, but the property is currently open to the public. Two unimproved SFWMD canal maintenance access roads run parallel to the C-103/Mowry Canal and the C-102/Princeton canal, respectively, crossing Krome Avenue. There are no facilities such as picnic tables, campgrounds, or activity areas where large numbers of people may congregate for long periods of time. Typically, there is only occasional use of these areas; therefore, they are not considered areas of frequent human use. As such, these areas were not considered to be noise sensitive.

Alternatives 3, 4, and 5 would increase roadway capacity by adding one travel-lane in each direction, allowing more vehicles to travel the corridor during peak periods; while Alternatives 1 and 2 would remain a two-lane roadway (although Alternative 2 would provide an additional passing lane along various segments of the project length). Other improvements planned with this project include minor alignment adjustments and intersection improvements that will cumulatively reduce the distance between the noise sensitive sites and the nearest travel lane by as much as 75 feet. Thus, during the design year (2040), the primary source of noise in the area is expected to remain to be the traffic on Krome Avenue.

Design year worst-case traffic noise levels with the No-Build Alternative are predicted to range from 52.1 to 67.8 dB(A). Design year, No-Build noise levels at the two NRHP-eligible sites, the Howard Schaff Residence and the Clarence J. Parman Residence, are predicted to be 56.9 and 66.1 dB(A), respectively. The predicted No-Build noise level at the at the Florida Audubon Society property is 66.1 dB(A).

Design year traffic noise levels with Alternatives 1 and 2 are predicted to range from 53.9 to 67.8 dB(A). With Alternatives 1 and 2, traffic noise levels at the two NRHP-eligible sites are predicted to range from 56.6 to 65.2 dB(A). The noise level with Alternatives 1 and 2 at the Florida Audubon Society property is predicted to be 65.8 dB(A). These noise levels are predicted to be a difference of approximately -1.5 to 4.4 dB(A) from existing and design year No-Build Alternative noise levels.

Design year traffic noise levels with Alternative 3 are predicted to range from 56.5 to 72.2 dB(A). With Alternative 3, traffic noise levels at the two NRHP-eligible sites are predicted to range from 60.5 and 69.7 dB(A). The noise level with Alternative 3 at the Florida Audubon Society property is predicted to be 70.7 dB(A). These noise levels are predicted to be approximately 2.7 to 8.8 dB(A) greater than existing and design year No-Build Alternative noise levels.





Design year traffic noise levels with Alternative 4 are predicted to range from 57.1 to 71.8 dB(A). With Alternative 4, traffic noise levels at the two NRHP-eligible sites are predicted to range from 60.4 and 69.3 dB(A). The noise level with Alternative 4 at the Florida Audubon Society property is predicted to be 70.4 dB(A). These noise levels are predicted to be approximately 2.3 to 8.4 dB(A) greater than existing and design year No-Build Alternative noise levels.

Design year traffic noise levels with Alternative 5 are predicted to range from 57.3 to 71.7 dB(A). With Alternative 5, traffic noise levels at the two NRHP-eligible sites are predicted to range from 60.6 and 69.2 dB(A). The noise level with Alternative 5 at the Florida Audubon Society property is predicted to be 70.2 dB(A). These noise levels are predicted to be approximately 2.4 to 8.3 dB(A) greater than existing and design year No-Build Alternative noise levels.

The design year (2040) traffic noise levels predicted with the build alternatives were compared to the FDOT NAC and to existing traffic noise levels to assess potential noise impacts associated with the project (see [Table 3-3](#)). Design year traffic noise levels for Alternatives 1 and 2 (typical section widths of 148 feet and 160 feet, respectively) are predicted to approach or exceed the NAC at three residences. With Alternative 3 (the widest typical section width of 206 feet), design year traffic noise levels are predicted to approach or exceed the NAC at 15 residences (including the Clarence J. Parman Residence, a residence eligible for NRHP-listing, represented by RW7) and at the Florida Audubon Society property (represented by Receptor RW1). Alternatives 4 and 5 are predicted to result in noise impacts at 13 residences (including the Clarence J. Parman Residence) and at the Florida Audubon Society property due to their slightly narrower typical sections of 172 feet for Alternative 4 and 148 feet and 166 feet for the suburban and rural typical sections of Alternatives 5, respectively. No sites are expected to experience any substantial noise level increases as defined by the FDOT [i.e., greater than 15.0 dB(A) over existing levels] with the build alternatives.

Since only residential land use, including the NRHP-eligible Clarence J. Parman residence, and the privately-owned Florida Audubon Society property were predicted to be impacted by this project, the applicable FDOT NAC is 66.0 dB(A). No other types of noise sensitive sites were predicted to be impacted by the proposed project. In accordance with FHWA requirements, noise abatement was considered for all noise sensitive locations where design-year traffic noise levels were predicted to equal or exceed the FDOT NAC. Conceptual noise barrier designs were evaluated for each impacted area for each of the applicable build alternatives to determine the most effective location, length, and height that will achieve the desired noise level reduction at reasonable cost. Alternatives 4 and 5 were considered identical for the purposes of the noise barrier analysis since the outside edges of the travel lane for these alternatives are within five feet of each other.

A total of ten noise barriers were evaluated for feasibility and reasonableness. The results of this analysis indicate that construction of the noise barriers appears feasible. However, none of the noise barriers are considered reasonable since they either were unable to reduce noise levels by the FDOT's noise reduction design goal [7.0 dB(A) for at least one benefitted receptor] or their





estimated construction cost exceeded the FDOT's cost reasonableness criteria (\$42,000 per benefitted receptor site). Thus, none of the noise barriers evaluated for this study are recommended for further consideration and there are no apparent solutions available to mitigate the noise impacts at any of the 3 to 15 residences (depending upon build alternative) and the Florida Audubon Society property. The traffic noise impacts to these noise sensitive sites are considered to be an unavoidable consequence of the project. The results of the noise barrier analysis are summarized in *Table 4-6*.

Table 4-6 – Noise Barrier Summary Table

Noise Barrier	Receptors	Reasonableness Criteria - Provides at Least 7 dB(A) Reduction For at Least One Receptor			Reasonableness Criteria - Less than FDOT's Noise Barrier Cost Criteria			Recommendation		
		Alt 3	Alt 4	Alt 5	Alt 3	Alt 4	Alt 5	Alt 3	Alt 4	Alt 5
1E	RE1	No	No	No	N/A	N/A	N/A	Not Recommended	Not Recommended	Not Recommended
2E	RE6, RE7	No	No	No	N/A	N/A	N/A	Not Recommended	Not Recommended	Not Recommended
3E	RE11	No	No	No	N/A	N/A	N/A	Not Recommended	Not Recommended	Not Recommended
1W	RW1	Yes	Yes	Yes	No	No	No	Not Recommended	Not Recommended	Not Recommended
2W	RW3	No	No	No	N/A	N/A	N/A	Not Recommended	Not Recommended	Not Recommended
3W	RW7	No	No	No	N/A	N/A	N/A	Not Recommended	Not Recommended	Not Recommended
4W	RW9, RW10	Yes	Yes	Yes	No	No	No	Not Recommended	Not Recommended	Not Recommended
5W	RW11	No	No	No	N/A	N/A	N/A	Not Recommended	Not Recommended	Not Recommended
6W	RW13	No	No	No	N/A	N/A	N/A	Not Recommended	Not Recommended	Not Recommended
7W	RW35, RW37-RW40	Yes	Yes	Yes	No	No	No	Not Recommended	Not Recommended	Not Recommended

To aid in promoting land use compatibility, a copy of the project's *Noise Study Report*, which provides information that can be used to protect future land development from becoming incompatible with anticipated traffic noise levels, will be provided to Miami-Dade County. In addition, generalized future noise impact contours for the properties in the immediate vicinity of the project have been developed for Noise Abatement Activity Categories B/C and E (i.e., residential/other sensitive land uses and sensitive commercial, respectively). These contours represent the approximate distance from the edge of the nearest proposed travel lane of Krome Avenue to the limits of the area predicted to approach [i.e., within 1.0 dB(A)] or exceed the NAC in the design year 2040. The contours do not consider any shielding of noise provided by structures between the receiver and the proposed travel lanes. Within the project corridor, the distance between the proposed edge of the outside travel lane and the contour are presented in *Table 4-7*. To minimize the potential for incompatible land use, noise sensitive land uses should be located beyond this distance.





Table 4-7 – Design Year (2040) Noise Impact Contour Distances

Build Alternative	Distance from Proposed Nearest Travel Lane to Noise Contour Line (Feet)	
	71 dB(A) – Activity Category E	66 dB(A) – Activity Category B/C
Alternative 1	65	130
Alternative 2	64	128
Alternative 3	60	122
Alternative 4	63	125
Alternative 5	62	127

4.3.4.1 Construction Noise and Vibration

The FDOT is exempt from local noise and vibration ordinances according to *Section 335.02* of the *Florida Statutes*. Although FDOT policy is to follow local ordinances to the extent that is reasonable, there are no known Miami-Dade County or local ordinances that set specific limitations on construction noise levels applicable to this type of project. During construction of the project, there is the potential for noise impacts to be greater than those resulting from normal traffic operations because heavy equipment is typically used to build roadways. In addition, construction activities may result in vibration impacts. To mitigate those impacts, the contractor will be required to adhere to the latest edition of FDOT *Standard Specifications for Road and Bridge Construction*. Specifications include noise screening guidelines for stationary equipment, exhaust noise, noise from loose equipment parts, and excessive tailgate banging.

No known businesses or other types of properties particularly sensitive to construction noise and/or vibration exist along the project corridor. A reassessment of the project corridor for construction-related noise/vibration impacts to such sites will be performed during design in an attempt to minimize impacts to such sites. Coordination between the FDOT and the owners of any noise or vibration sensitive sites identified during design should occur and Technical Special Provisions should be developed for the project's contract package in an attempt to minimize impacts to such businesses.



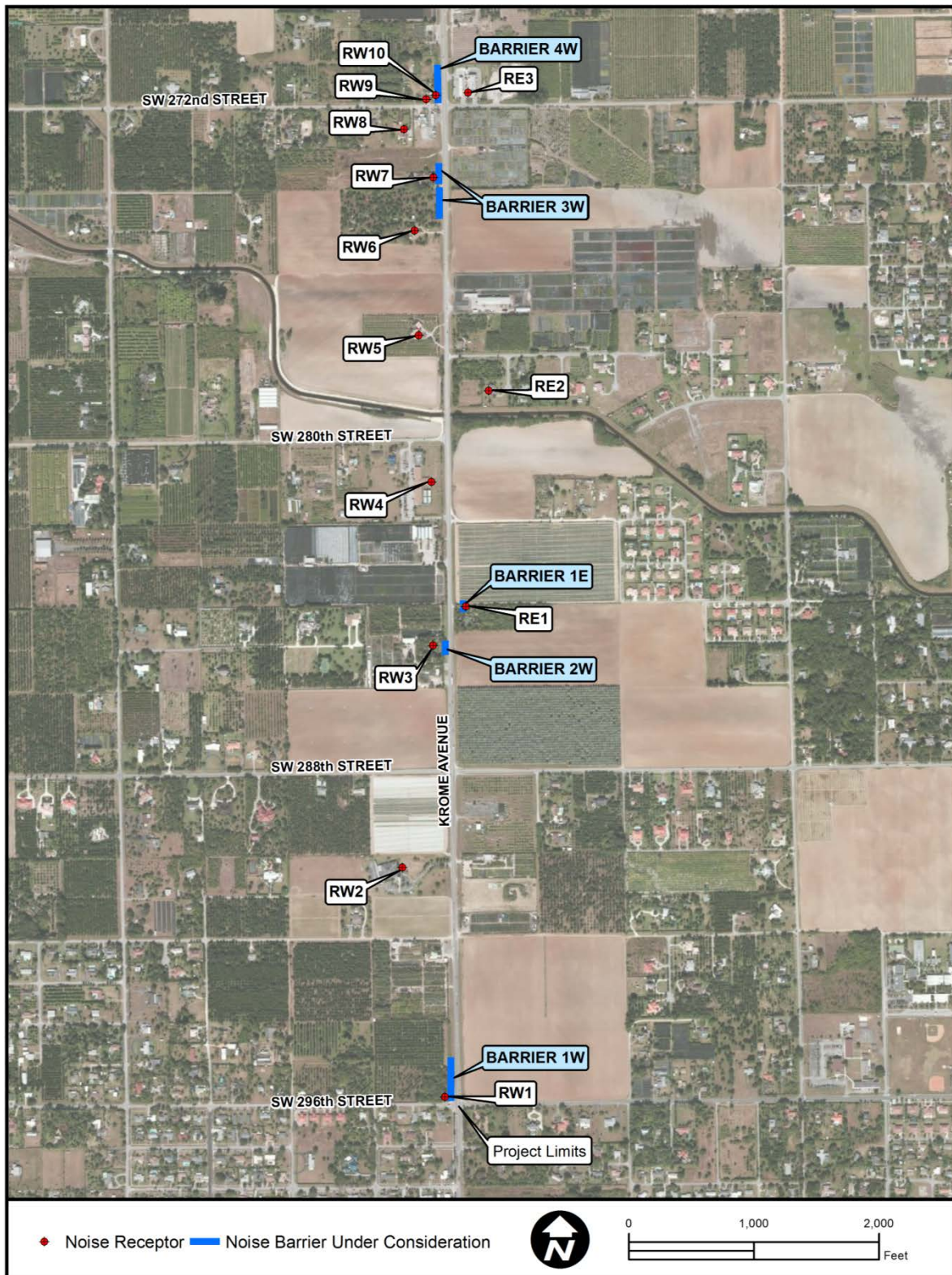


Figure 4-1a – Modeled Noise Receptor Locations and Noise Barriers Under Consideration



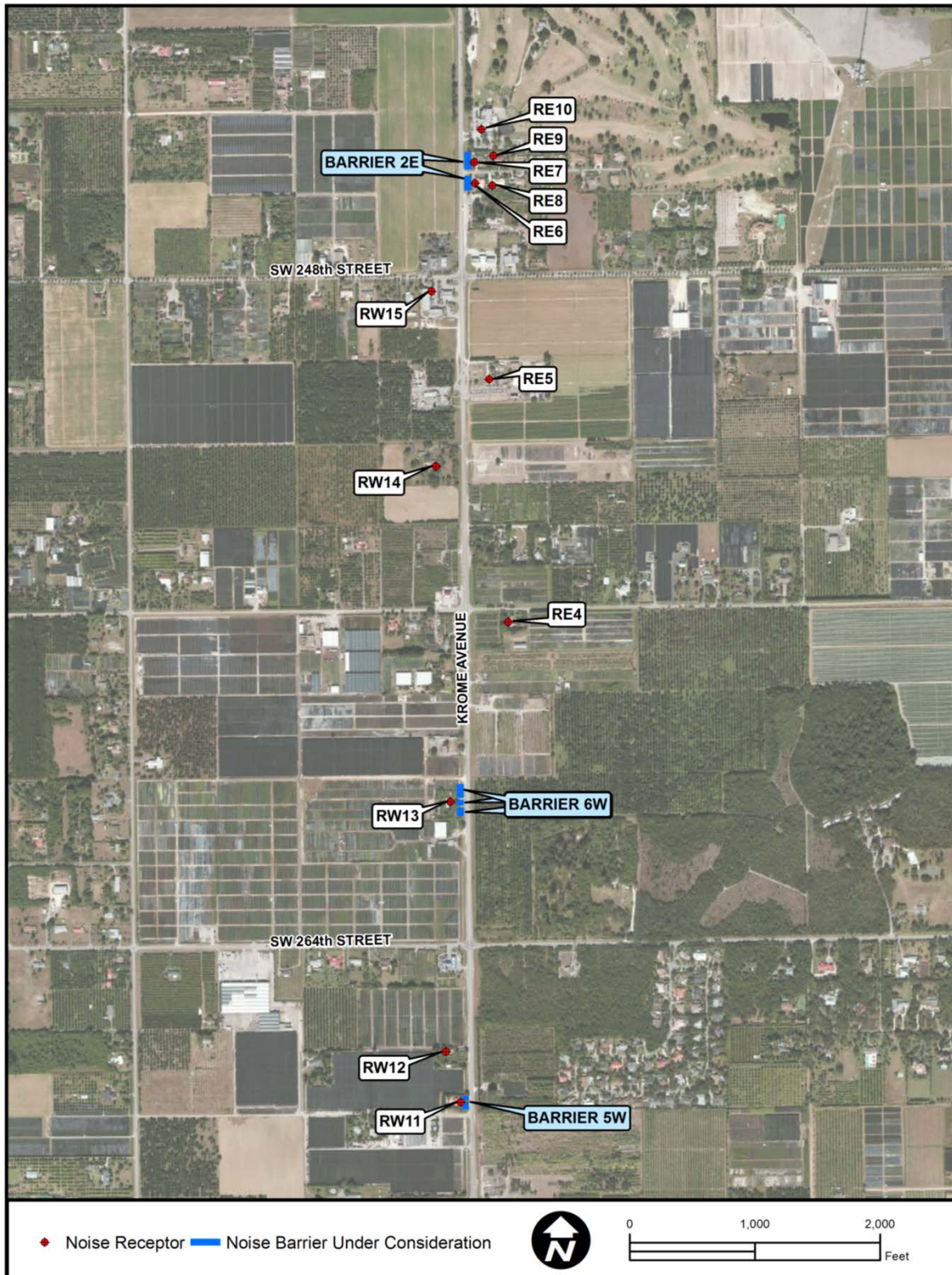


Figure 4-1b – Modeled Noise Receptor Locations and Noise Barriers Under Consideration





Figure 4-1c – Modeled Noise Receptor Locations and Noise Barriers Under Consideration



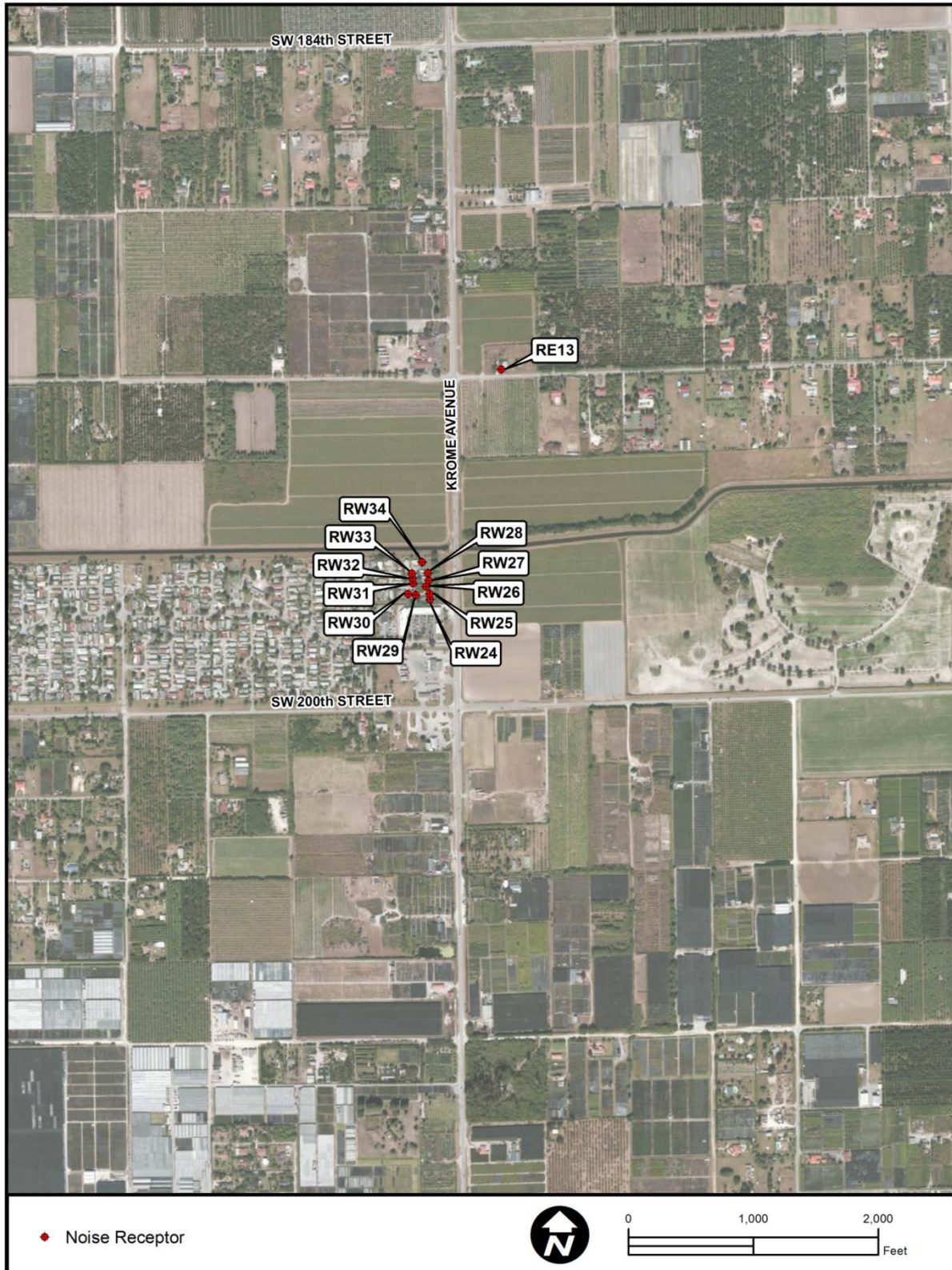


Figure 4-1d – Modeled Noise Receptor Locations and Noise Barriers Under Consideration





Figure 4-1e – Modeled Noise Receptor Locations and Noise Barriers Under Consideration





Figure 4-1f – Modeled Noise Receptor Locations and Noise Barriers Under Consideration





Table 4-5 – Modeled Noise Receptor Locations and Noise Analysis Results

Representative Model Receptor	Community/Site Name	Type	Description (Noise Abatement Activity Category)	FDOT Noise Abatement Criteria [dB(A)]	Location (Side of Road and Station)	Number of Noise Sensitive Sites	Distance to Nearest Traffic Lane ¹						Predicted Traffic Noise Levels						
													[LAeq1h, dB(A)]						
							Existing	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Existing (2004)	Design Year (2040)					
No Build	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5														
East Side Receptors																			
RE1 [†]	28455 SW 177 th Avenue	Residence	1 st Row Residence (B)	66	East–Sta. 153+17	1	100	61	61	40	49	56	63.4	63.4	67.8	67.8	72.2	71.8	71.7
RE2	27824 SW 175 th Court	Residence	1 st Row Residence (B)	66	East–Sta. 170+48	1	312	268	268	247	256	263	55.4	55.4	56.1	56.1	60.0	59.9	60.2
RE3	Redland Grill 17695 SW 272 nd Street	Restaurant	Sensitive Commercial (E)	71	East–Sta. 194+27	SLU	170	124	124	103	112	119	60.7	60.7	63.6	63.6	67.7	67.4	67.5
RE4	25605 SW 177 th Avenue	Residence	2 nd Row Residence (B)	66	East–Sta. 245+76	1	314	285	285	264	273	280	55.9	55.9	55.7	55.7	59.5	59.4	59.4
RE5	25045 SW 177 th Avenue	Residence	1 st Row Residence (B)	66	East–Sta. 265+10	1	192	172	172	151	160	167	58.1	58.1	59.9	59.9	63.9	63.7	63.7
RE6	17624 SW 245 th Terrace	Residence	1 st Row Residence (B)	66	East–Sta. 280+74	1	87	112	112	91	99	106	62.3	62.3	61.9	61.9	66.0	65.8	65.8
RE7	17625 SW 245 th Terrace	Residence	1 st Row Residence (B)	66	East–Sta. 282+40	1	82	108	108	87	96	103	64.8	64.8	63.9	63.9	68.2	67.9	67.9
RE8	17604 SW 245 th Terrace	Residence	2 nd Row Residence (B)	66	East–Sta. 280+88	1	222	247	247	226	234	241	59.0	59.0	58.7	58.7	62.5	62.4	62.5
RE9	17605 SW 245 th Terrace	Residence	2 nd Row Residence (B)	66	East–Sta. 282+56	1	234	259	259	238	247	254	57.6	57.6	57.6	57.6	61.4	61.4	61.4
RE10	Redland Country Club 24401 SW 177 th Avenue	Pool Area	Sensitive Commercial (E)	71	East–Sta. 285+04	SLU	137	163	163	142	151	158	61.0	61.0	60.7	60.7	64.7	64.5	64.5
RE11	23655 SW 177 th Avenue	Residence	1 st Row Residence (B)	66	East–Sta. 309+20	1	111	125	125	104	113	120	62.5	62.5	62.7	62.7	66.9	66.6	66.6
RE12	Redland Church of the Nazarene 22755 SW 177 th Avenue	Church	Place of Worship (C)	66	East–Sta. 342+00	SLU	262	217	217	196	205	212	55.3	55.3	57.9	57.9	61.9	61.7	61.7
RE13	19125 SW 177 th Avenue	Residence	1 st Row Residence (B)	66	East–Sta. 460+16	1	356	311	311	290	299	306	52.8	52.8	55.2	55.2	58.7	58.7	58.7
West Side Receptors																			
RW1	Florida Audubon Society property	Unimproved Park	Park (C)	66	West–Sta. 113+95	SLU	79	92	92	71	80	87	66.1	66.1	65.8	65.8	70.7	70.4	70.2
RW2	First Baptist of Homestead 29050 SW 177 th Avenue	Church	Place of Worship (C)	66	West–Sta. 132+30	SLU	392	405	405	384	393	400	52.1	52.1	53.9	53.9	56.5	57.1	57.7
RW3	28500 SW 177 th Avenue	Residence	1 st Row Residence (B)	66	West–Sta. 150+04	1	120	137	137	116	125	132	62.0	62.0	62.0	62.0	66.1	65.9	65.7
RW4	Homestead Church of Christ 17700 SW 280 th Street	Church	Place of Worship (C)	66	West–Sta. 163+21	SLU	137	160	160	139	148	155	61.6	61.6	61.0	61.0	65.0	64.8	64.7
RW5	27750 SW 177 th Avenue	Residence	1 st Row Residence (B)	66	West–Sta. 175+00	1	200	224	224	203	212	219	58.0	58.0	57.8	57.8	61.7	61.6	61.6
RW6*	27450 SW 177 th Avenue	Residence	1 st Row Residence (B)	66	West–Sta. 183+20	1	233	256	256	235	244	251	56.9	56.9	56.6	56.6	60.5	60.4	60.6
RW7*	27250 SW 177 th Avenue	Residence	1 st Row Residence (B)	66	West–Sta. 187+47	1	70	94	94	73	82	89	66.1	66.1	65.2	65.2	69.7	69.3	69.2
RW8	17750 SW 272 nd Street	Residence	2 nd Row Residence (B)	66	West–Sta. 191+34	1	319	345	345	324	333	340	55.5	55.5	55.6	55.6	59.1	59.1	59.2
RW9	27190a SW 177 th Avenue	Residence	1 st Row Residence (B)	66	West–Sta. 194+00	1	45	71	71	50	59	66	67.8	67.8	67.2	67.2	71.6	71.3	71.3
RW10	27190b SW 177 th Avenue	Residence	2 nd Row Residence (B)	66	West–Sta. 193+73	1	124	150	150	129	138	145	62.3	62.3	62.8	62.8	66.7	66.6	66.6
RW11	26720 SW 177 th Avenue	Residence	1 st Row Residence (B)	66	West–Sta. 207+42	1	80	96	96	75	84	91	65.3	65.3	65.0	65.0	69.5	69.1	69.1
RW12	26430 SW 177 th Avenue	Residence	1 st Row Residence (B)	66	West–Sta. 211+37	1	182	194	194	173	182	189	58.6	58.6	58.9	58.9	62.9	62.8	62.7
RW13	26030 SW 177 th Avenue	Residence	1 st Row Residence (B)	66	West–Sta. 231+33	1	129	135	135	114	123	130	61.4	61.4	62.1	62.1	66.3	66.0	66.0
RW14	25300 SW 177 th Avenue	Residence	1 st Row Residence (B)	66	West–Sta. 258+28	1	208	218	218	197	206	213	57.4	57.4	57.9	57.9	61.8	61.7	61.7
RW15	Dairy Queen 24810 SW 177 th Avenue	Restaurant	Sensitive Commercial (E)	71	West–Sta. 272+13	SLU	236	212	212	191	200	207	57.8	57.8	59.9	59.9	62.9	62.8	62.8
RW16	23800 SW 177 th Avenue	Residence	1 st Row Residence (B)	66	West–Sta. 303+90	1	194	152	152	131	140	147	57.9	57.9	61.1	61.1	65.1	64.9	64.9
RW17	Redland Tavern 17701 SW 232 nd Street	Restaurant	Sensitive Commercial (E)	71	West–Sta. 327+90	1	85	108	108	87	96	103	65.8	65.8	64.3	64.3	68.5	68.1	68.2
RW18	Grove Inn Country Guesthouse 22540 SW 177 th Avenue	Hotel	Sensitive Commercial (E)	71	West–Sta. 347+58	4	89	115	115	94	103	110	64.4	64.4	63.5	63.5	67.8	67.4	67.5





Table 4-5 – Modeled Noise Receptor Locations and Noise Analysis Results

Representative Model Receptor	Community/Site Name	Type	Description (Noise Abatement Activity Category)	FDOT Noise Abatement Criteria [dB(A)]	Location (Side of Road and Station)	Number of Noise Sensitive Sites	Distance to Nearest Traffic Lane ¹						Predicted Traffic Noise Levels						
							Existing	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	[LAeq1h, dB(A)]						
													Existing (2004)	Design Year (2040)					
														No Build	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
RW19	22400 SW 177 th Avenue	Residence	1 st Row Residence (B)	66	West–Sta. 352+57	1	123	149	149	128	137	144	61.7	61.7	61.2	61.2	65.3	65.1	65.2
RW20	22300 SW 177 th Avenue	Residence	2 nd Row Residence (B)	66	West–Sta. 356+37	1	258	284	284	263	272	279	55.4	55.4	55.7	55.7	59.5	59.4	59.5
RW21	17705 SW 218 th Street	Residence	1 st Row Residence (B)	66	West–Sta. 375+42	1	210	235	235	214	223	230	57.5	57.5	57.3	57.3	61.3	61.1	61.1
RW22	21630 SW 177 th Avenue	Residence	1 st Row Residence (B)	66	West–Sta. 377+42	1	227	252	252	231	240	247	57.1	57.1	57.0	57.0	60.7	60.6	60.7
RW23	21600 SW 177 th Avenue	Residence	1 st Row Residence (B)	66	West–Sta. 378+63	1	281	306	306	285	294	301	56.3	56.3	57.1	57.1	59.7	59.8	59.7
RW24	19800 SW 180 th Avenue	Residence	1 st Row Residence (B)	66	West–Sta. 441+73	1	196	221	221	200	209	216	57.8	57.8	57.8	57.8	61.7	61.6	61.6
RW25	19800 SW 180 th Avenue	Residence	1 st Row Residence (B)	66	West–Sta. 442+20	1	197	222	222	201	210	217	57.8	57.8	57.8	57.8	61.7	61.6	61.5
RW26	19800 SW 180 th Avenue	Residence	1 st Row Residence (B)	66	West–Sta. 442+74	1	222	247	247	226	235	242	56.8	56.8	56.8	56.8	60.7	60.6	60.6
RW27	19800 SW 180 th Avenue	Residence	1 st Row Residence (B)	66	West–Sta. 443+23	1	200	225	225	204	213	220	57.6	57.6	57.6	57.6	61.5	61.4	61.4
RW28	19800 SW 180 th Avenue	Residence	1 st Row Residence (B)	66	West–Sta. 443+85	1	210	235	235	214	223	230	57.2	57.2	57.3	57.3	61.1	61.1	61.0
RW29	19800 SW 180 th Avenue	Residence	2 nd Row Residence (B)	66	West–Sta. 442+12	1	303	328	328	307	316	323	54.2	54.2	54.9	54.9	58.3	58.4	58.4
RW30	19800 SW 180 th Avenue	Residence	3 rd Row Residence (B)	66	West–Sta. 442+14	1	366	392	392	371	380	387	52.7	52.7	54.1	54.1	56.8	57.3	57.3
RW31	19800 SW 180 th Avenue	Residence	2 nd Row Residence (B)	66	West–Sta. 443+00	1	328	354	354	333	341	348	53.5	53.5	54.6	54.6	57.6	57.9	57.9
RW32	19800 SW 180 th Avenue	Residence	2 nd Row Residence (B)	66	West–Sta. 443+44	1	332	357	357	336	345	352	53.4	53.4	54.5	54.5	57.5	57.8	57.8
RW33	19800 SW 180 th Avenue	Residence	2 nd Row Residence (B)	66	West–Sta. 443+80	1	335	360	360	339	348	355	53.4	53.4	54.5	54.5	57.5	57.8	57.8
RW34	19800 SW 180 th Avenue	Residence	1 st Row Residence (B)	66	West–Sta. 444+72	1	255	280	280	259	268	275	55.6	55.6	55.8	55.8	59.6	59.5	59.5
RW35	17710 SW 176 th Street	Residence	1 st Row Residence (B)	66	West–Sta. 513+38	1	80	87	87	66	75	82	65.2	65.2	66.0	66.0	70.3	70.0	69.9
RW36	17730 SW 176 th Street	Residence	2 nd Row Residence (B)	66	West–Sta. 513+38	1	213	220	220	199	207	214	57.1	57.1	58.0	58.0	62.0	61.9	61.8
RW37	17701 SW 176 th Street	Residence	1 st Row Residence (B)	66	West–Sta. 515+40	1	105	103	103	82	91	98	62.9	62.9	64.6	64.6	69.1	68.7	68.5
RW38	17700 SW 175 th Street	Residence	1 st Row Residence (B)	66	West–Sta. 516+66	1	110	102	102	81	90	97	62.5	62.5	64.7	64.7	69.2	68.9	68.6
RW39	17701 SW 175 th Street	Residence	1 st Row Residence (B)	66	West–Sta. 518+00	1	113	100	100	79	88	95	62.3	62.3	65.0	65.0	69.4	69.1	68.8
RW40	17700 SW 174 th Street	Residence	1 st Row Residence (B)	66	West–Sta. 519+13	1	117	101	101	80	89	96	62.0	62.0	64.9	64.9	69.4	69.1	68.8
RW41	17725 SW 175 th Street	Residence	2 nd Row Residence (B)	66	West–Sta. 517+88	1	261	248	248	227	235	242	55.4	55.4	57.0	57.0	60.9	60.8	61.0
RW42	17705 SW 158 th Street	Residence	1 st Row Residence (B)	66	West–Sta. 574+31	1	201	185	185	164	173	180	57.6	57.6	59.3	59.3	63.3	63.1	63.1

Notes: ¹ = To Krome Avenue mainline, outside lane, distances from the near edge-of-pavement.
SLU = Special Land Use site, Sta. = Station
Bold numbers represent noise levels approaching or exceeding FHWA’s NAC
† = The Right-of-Way Relocation Cost Estimate Table designates this parcel (Number 18) as a “Residential Relocation.” However, for the purposes of the noise analysis it is assumed that the relocation will not occur since the structure is not physically impacted and the ultimate outcome is at the owner’s discretion.
* = These homes are eligible for listing on the NRHP.





4.3.5 Wetlands/Surface Waters

In compliance with Presidential Executive Order 11990, and using assessment methodology, evaluation procedures, and document preparation guidance found in the 4-41 FHWA's Technical Advisory T6640.8A, Title 23, Code of Federal Regulations, Part 777, and the FDOT *PD&E Manual*, Part 2, Chapter 18 – Wetlands (dated April 22, 2013), the Krome Avenue project has been evaluated to determine which build alternatives would impact wetlands or surface water and the extent to which those potential impacts would affect wetland functions and values. If wetland or surface water impacts were determined to be unavoidable, the evaluation included a determination of mitigative measures to compensate for impacts to wetlands. A *Wetland Evaluation Report* has been prepared for this project and is available for review at the FDOT District Six offices in Miami, Florida and is incorporated by reference.

Extensive assessments of wetland/surface water resources within the project study area have been conducted. An inventory of wetlands/surface waters was performed and includes coverage inside and outside of the existing roadway right-of-way. The inventory utilized the USFWS National Wetland Inventory Database, United States Geological Survey Quadrangle Maps, United States Department of Agriculture Soil Conservation Service Soil Survey of Miami-Dade County, USFWS Classification of Wetlands and Deepwater Habitats of the United States, FDOT FLUCFCS, various scale aerial photography, and ground-truthing.

Wetland surveys of the project study area were conducted by project biologists in 2004 and 2010. No areas with characteristics indicative of jurisdictional vegetated wetlands or waters of the United States, as defined by Section 404 of the Clean Water Act, were observed within or adjacent to the project study area. This includes natural wetland communities as well as swales or other manmade stormwater features. Therefore, no impacts (direct or indirect) to jurisdictional wetlands are anticipated as a result of implementation of any of the build alternatives.

Three areas characterized as surface waters consisting of two community types were identified and assessed. These areas consist of an inundated rock mining pit (borrow pit) (SW-1) excavated in Miami oolite rock located on the west side of Krome Avenue approximately 1,000 feet north of SW 208th Street; the SFWMD's C-102/Princeton canal (SW-2) which crosses Krome Avenue at approximately SW 196th Street; and the SFWMD's C-103/Mowry canal (SW-3) which crosses Krome Avenue just north of SW 280th Street. Direct impacts associated with each build alternative are depicted in [Table 4-8](#). Direct impact estimates are based on the aerial extent of the surface water areas within the proposed construction limits for each proposed build alternative.

Alternative 1 would directly impact approximately 0.14 acres of surface waters; Alternative 2 would directly impact approximately 0.14 acres of surface waters; Alternative 3 would directly impact approximately 0.34 acres of surface waters; Alternative 4 would directly impact approximately 0.21 acres of surface waters; and Alternative 5 would directly impact approximately 0.15 acres of surface waters. Since the waterways will remain virtually intact following the proposed construction activities, the proposed impacts are expected to be minimal. Surface water impact acreages will be further refined as detailed construction plans are developed during the final design phase of the project.





Table 4-8 – Direct Surface Water Impacts

Surface Water ID	FLUCFCS	Description	Direct Surface Water Impacts (ft ²)	Direct Surface Water Impacts (acres)
Alternative 1				
SW-1	742	Former Borrow Pit	0	0
SW-2	510	C-102/Princeton Canal	2,975	0.07
SW-3	510	C-103/Mowry Canal	3,180	0.07
Alternative 1 Totals			6,155	0.14
Alternative 2				
SW-1	742	Former Borrow Pit	0	0
SW-2	510	C-102/Princeton Canal	2,975	0.07
SW-3	510	C-103/Mowry Canal	3,180	0.07
Alternative 2 Totals			6,155	0.14
Alternative 3				
SW-1	742	Former Borrow Pit	2,250	0.05
SW-2	510	C-102/Princeton Canal	6,100	0.14
SW-3	510	C-103/Mowry Canal	6,520	0.15
Alternative 3 Totals			14,870	0.34
Alternative 4				
SW-1	742	Former Borrow Pit	900	0.02
SW-2	510	C-102/Princeton Canal	4,400	0.1
SW-3	510	C-103/Mowry Canal	3,900	0.09
Alternative 4 Totals			9,200	0.21
Alternative 5				
SW-1	742	Former Borrow Pit	1,647	0.04
SW-2	510	C-102/Princeton Canal	2,274	0.05
SW-3	510	C-103/Mowry Canal	2,659	0.06
Alternative 5 Totals			6,580	0.15

4.3.5.1 Indirect Impacts

Indirect impacts are to be expected for those surface waters that will be directly impacted because a suitable upland buffer does not exist between the remaining portion of the surface water and the proposed improvement. However, indirect impacts to the existing surface water areas along Krome Avenue are anticipated to be minimal due to the implementation of appropriate measures such as sedimentation and erosion control best management practices (BMPs) in accordance with the latest edition of FDOT's *Standard Specifications for Road and Bridge Construction* and, per Section 4.2.7 of the SFWMD's Basis of Review for Environmental Resource Permit Applications. All BMPs associated with roadway construction projects will be properly implemented and maintained throughout all construction activities to avoid/minimize the potential for short-term impacts relating to water quality and wildlife. Although the build alternatives propose additional lanes to accommodate existing and future traffic demands, the additional traffic is not expected to have any significant adverse effect on the functions of the surface water areas.





4.3.5.2 *Elimination and Reduction (Avoidance and Minimization) of Impacts*

As surface water areas exist adjacent to or within close proximity of the existing roadway corridor, the complete avoidance of surface water impacts is neither practicable nor compatible with any safety or operational improvements, and there is substantial demand to justify the need for the proposed improvements along this corridor.

All factors relating to the design and location of the facility, as well as information and issues relevant to the project decision making process were considered, including socio-economic, environmental and engineering issues. The following alignment controls which may influence corridor location were considered:

- Available physical envelope through which an improvement providing acceptable service could be routed;
- Cultural features, including public and private development;
- Natural features (wetlands, protected wildlife, surface waters, etc.) which could be impacted by the project; and
- Logical termini, giving consideration to directness, length, and service.

Each proposed alternative was analyzed and evaluated to a point of rejection or selection as a viable alternative. The impacts of each corridor alignment alternate were identified and expressed in a form suitable for comparison to other corridor alternates, through the use of an evaluation matrix (reference the *Corridor Analysis Report* for this project). Based on the results of the evaluation of alternatives process, it was determined that the existing SR 997/Krome Avenue corridor (Alternate Corridor #3) is the most viable corridor for the improvement project. As a result, this corridor (Krome Avenue) was selected and recommended for further consideration since this corridor best meets the needs for the project and minimizes impacts to wetlands and/or surface waters to the greatest extent practicable, while maintaining safe and sound engineering practices, when compared to the alternative corridors evaluated.

This proposed alignment alternative was further refined by consideration of the proposed roadway profile and associated typical section in order to reduce proposed impacts to wetlands and/or surface waters as much as possible while meeting the safety and transportation needs of the project. In addition, further efforts to reduce impacts will be implemented as detailed construction plans are developed during the permitting and final design phase of the project including the use of BMPs in accordance with the latest edition of FDOT's *Standard Specifications for Road and Bridge Construction*.

4.3.5.3 *Conceptual Mitigation*

Although the project limits have been refined to reduce impacts to the identified surface water areas to the greatest extent practicable, unavoidable impacts to these areas are anticipated to occur. However, no mitigation is required for impacts to the identified surface water areas because no net loss in functional values will result from the proposed improvements and no indirect or cumulative impacts are anticipated to occur (see [Section 4.3.18](#) for a discussion of cumulative impacts). In addition, in relation to wetlands, no mitigation would be required





because no direct impacts to wetlands would occur as a result of this project and no indirect or cumulative impacts are anticipated downstream of the proposed project.

4.3.5.4 Environmental Permitting

Agency coordination for this project occurred through the ETDM Planning and Program Screening, the AN process, and individual conversations with staff at the USACE, SFWMD, USFWS, FDEP, FWC, to discuss project specific information. Agency coordination conducted for this project is also discussed in [Section 5.2](#).

A site assessment with the SFWMD was conducted on March 8, 2005. The purpose of this site investigation was to assess the habitats within the study area, verify the limits of wetland/surface waters, and to discuss potential direct, indirect, and cumulative impacts. During the field site assessment, the SFWMD informally agreed to the limits of surface water habitats which may be impacted as a result of the proposed project. The USACE advised that they are aware of the surface water areas along the study corridor and will investigate the site in further detail following receipt of a Section 404 Department of the Army Dredge/Fill Permit application (USACE staff informally concurred with the SFWMD determination via verbal communication in 2005).

Both the USACE and SFWMD regulate impacts to wetlands/surface waters within the project area. Other agencies, including the USEPA, National Marine Fisheries Service, USFWS, FDEP and FWC, typically review and comment on permit applications. A list of the environmental-related permits that are anticipated to be required for this project, regardless of the alternative selected, is provided in [Table 4-9](#) below.

Table 4-9 – Anticipated Environmental Permits

Permit Type	Issuing Agency
Environmental Resource Permit	SFWMD
Right-of-Way Occupancy Permit	SFWMD
Water Use Permit (Construction Dewatering)	SFWMD
Section 404 Dredge and Fill Permit	USACE
National Pollutant Discharge Elimination System	FDEP

No substantial adverse issues were identified by the regulatory and/or commenting agencies during the preparation of the *Wetland Evaluation Report* as to applying for and acquiring the necessary environmental/stormwater management permits for this proposed project.

4.3.6 Water Quality

In accordance with the FDOT *PD&E Manual*, Part 2, Chapter 20 – Water Quality (dated February 25, 2004), a Water Quality Impact Evaluation has been conducted for this project. A Water Quality Impact Evaluation Checklist has been prepared and a copy is provided in [Appendix M](#).





All necessary precautions and BMPs pertaining to construction will be followed to prevent adverse impacts to the underlying sole source aquifer (Biscayne Aquifer). The AN response from the USEPA (dated June 30, 2004) also concluded that the project will have no adverse impacts to the sole source aquifer if all necessary BMPs are employed. A copy of this letter has been enclosed in [Appendix N](#).

Section 3.2.2.8 of Chapter 40E-4 FAC. states that alterations to existing public roadways will be required to treat a volume equal to those specified in Section 3.2.2.2 and the contributing area according to the following options:

- For off-line and on-line treatment systems, including wet detention, which provide storage of the treatment volume off-line from the primary conveyance path of the flood discharges, the area of new pavement must be treated.
- For all other on-line treatment systems, including wet detention, the entire directly connected impervious area contributing to the system, including both on and off-site areas must be treated. Directly connected impervious areas consist of both new and existing pavement which is connected to the treatment system by pavement or pipe and convey untreated stormwater runoff.
- For on-line and off-line percolation systems, the treatment volume is calculated by applying 0.5 inches of runoff over the limits of the right-of-way.

For the Krome Avenue study corridor, the stormwater management system was divided into fifty-three (53) drainage basins. Each of these drainage basins would consist of roadside swales and French drain systems underneath the swales. All of the drainage systems will be self-contained, able to retain the contributing runoff with no offsite discharge.

All of the drainage basins serving the southbound lanes of Krome Avenue will utilize the median swale and the roadside swale located along the outside of the southbound travel lanes. All of the drainage systems serving the northbound lanes will only utilize the roadside swale located along the outside of the northbound lanes. The proposed swales alone are sufficient to retain the required water quality treatment volume per the SFWMD's regulatory criteria. However, French drains will need to be added to the proposed swales in order to provide for flood protection of the proposed roadway corridor to recover the stormwater runoff within 24 hours following a storm event and to retain the runoff from the 25-year and 100-year storms; thus, keeping pre-development offsite discharge rates from being exceeded.

The impact of the FDOT recommended alternative on surface water quality will be limited to potential adverse effects of erosion/turbidity during construction. These construction impacts are considered temporary and will be minimized by strict adherence to temporary erosion control features as provided in the FDOT's latest edition of *Standard Specifications for Road and Bridge Construction* and USEPA's National Pollutant Discharge Elimination System permit requirements. Therefore, no mitigation for water quality impacts will be needed. The proposed stormwater facility design will include, at a minimum, the water quantity requirements as required by SFWMD in Rule 40E-4, FAC.





4.3.7 Outstanding Florida Waters

The proposed project does not involve any Outstanding Florida Waters; therefore, no impacts to Outstanding Florida Waters are anticipated as a result of this project.

4.3.8 Contamination

Pursuant to the FHWA's *Technical Advisory T 6640.8A* and in accordance with the FDOT *PD&E Manual*, Part 2, Chapter 12 – Contamination Impacts (dated January 17, 2008), a contamination screening evaluation was performed to evaluate potential impacts from contaminated sites to the project and a *Contamination Screening Evaluation Report* was prepared. A copy of the *Contamination Screening Evaluation Report* is available for review at the FDOT District Six offices in Miami, Florida and is incorporated by reference.

The proposed right-of-way has been evaluated and potential contaminated concerns have been identified for the proposed build alternatives. For all of the build alternatives (Alternatives 1 through 5), the potential contamination concerns are nearly equivalent due to the proximity of the contamination concerns to the existing roadway (all of the sites are directly adjacent to the existing roadway).

Potential contamination of soil and groundwater by petroleum hydrocarbon compounds has been documented at several locations near the Krome Avenue study corridor. Based on the information provided in the Environmental Data Resources, Inc. report and the regulatory files at the FDEP and DRER EMRD, and their potential to impact the Krome Avenue study corridor, the contamination concerns have been rated High, Medium, or Low. After a review of all available data, such as agency file reviews (DRER EMRD and FDEP), the Environmental Data Resources, Inc. database report, aerial photography and city directories, 12 sites of potential concern were identified for the Krome Avenue study corridor: four sites rated as High risk, seven sites rated as Medium risk, and one site rated as Low Risk. The 12 identified potential contamination concerns are summarized in **Table 3-6** and shown in **Figures 3-12** through **3-12g** in Chapter 3.

Since the project corridor is not located within a designated brownfield area and is up-gradient of the Redlands/Leisure City Brownfield area, no adverse impacts to or from the brownfield are anticipated to occur.

The project corridor does not intersect with any wellfield protection areas (see **Section 3.3.6** for a list of the nearby wellfields). Additionally, any wellfields are separated from the project corridor by Miami Dade County secondary canals and SFWMD canals such as the C-1W, C-102, C-103N, and C-103, which act as protective hydraulic barriers. Although the wellfields are located down-gradient of the project corridor, based on the distance between the wellfields and the project corridor and the presence of hydraulic barriers (canals), the potential for migration of contamination from the project corridor to the wellfields is not anticipated to occur. Furthermore, due to the distance of the wellfields from the project corridor, no impacts to the individual water withdrawal wells associated with each of these wellfields are anticipated to occur as a result of this project.





However, the information available in the Environmental Data Resources, Inc. report and/or from the regulatory agencies did not clearly define the presence, location or extent of site contamination within the FDOT's right-of-way. Due to this uncertainty, further investigation is warranted for some of these sites as discussed herein. The FDOT will utilize the information contained in this report to determine the extent of additional investigation. A Level 2 Contamination Assessment investigation will be conducted prior to any right-of-way acquisition, should any become necessary, and/or prior to the design phase. Based on the findings of updated future review and Level 2 investigation, the design engineers may be instructed to avoid the areas of concern or to include special provisions with the plans to require that the construction activities performed in the areas of concern be performed by a Contamination Assessment and Remediation contractor specified by the FDOT.

An evaluation of construction dewatering activities should be undertaken after the FHWA preferred alternative is selected (after the public hearing for the project). Specialized construction dewatering permits may be required from various state or local regulatory agencies, depending on the proximity to contaminated sites.

If the project is determined to impact any existing groundwater monitoring wells associated with adjacent sites/facilities, arrangements with the owner of the monitoring wells will be made to properly abandon (in accordance with Chapter 62-532, FAC) and/or replace any wells that may be destroyed or damaged during construction.

It must be recognized that the possibility exists that some hazardous substances, petroleum products, or environmental contamination not identified during this assessment may exist on or in the immediate vicinity of the project. This is because regulatory agency records are not always complete; not all leaks, spills, and discharges are reported; not all Underground Storage Tanks (USTs) and aboveground storage tanks are registered. It is unknown if any registered substances were illegally dumped or were deposited during past construction activities.

Section 120 Excavation and Embankment – Sub-article 120-1.2 Unidentified Areas of Contamination of the FDOT's *Standard Specifications for Road and Bridge Construction* will be provided in the project's construction contract documents. This specification requires that in the event that any hazardous material or suspected contamination is encountered during construction, or if any spills caused by construction-related materials should occur, the contractor shall be instructed to stop work immediately and notify the District Six Intermodal Systems Development Office as well as the appropriate regulatory agencies for assistance.

4.3.9 Wild and Scenic Rivers

There are no designated wild and scenic rivers in the study area, as defined by the Wild and Scenic Rivers Act (16 USC 1271-1287); therefore, there are no impacts to wild and scenic rivers.





4.3.10 Floodplains

Pursuant to Presidential Executive Order 11988, entitled “Floodplain Management,” USDOT Order 5650.2, and Chapter 23, CFR 650A, and in accordance with the FDOT *PD&E Manual*, Part 2, Chapter 24 – Floodplains (dated January 7, 2008), the project alternatives were analyzed for potential floodplain impacts. Floodplain impacts were incorporated into the *Wetland Evaluation Report* prepared for this project, which is available on file at the FDOT District Six offices in Miami, Florida and is incorporated by reference.

The entire project length is outside of those areas identified as being affected by any projected sea level rise of up to five feet over the next 100 years. The FEMA 100-year Base Flood Elevation varies throughout the length of the project from Elevation 8.00 NGVD to Elevation 9.00 NGVD. At the same time, the Design High Water that is to be used for Base Clearance purposes will vary from Elevation 4.00 NGVD to Elevation 6.00 NGVD. During the design phase, however, it will be coordinated with FDOT, SFWMD, and DRER personnel as to what the actual Design High Water should be for Base Clearance purposes used to establish the minimum roadway edge of pavement elevation. Future changes to the watershed within the project vicinity as it relates to the Everglades Restoration Project, climate change, and/or urbanization of the surrounding areas may require the use of a higher Design High Water Elevation than would normally be used. Such was the case for the adjacent sections of Krome Avenue located to the north of the subject project, where a higher Design High Water elevation was used in order to account for future changes to the surrounding watershed area. This higher Design High Water elevation, which was used to establish the minimum roadway edge of pavement elevation, resulted in this section of Krome Avenue being higher than the FEMA 100-year Base Flood Elevation. These considerations and discussions are factors that will be taken into consideration during the design phase of the project. At any rate, the FDOT requirement for base clearance of Krome Avenue is a minimum of three feet from the Design High Water Elevation to the minimum bottom of roadway base elevation. In addition, the preliminary estimated roadway base thickness is approximately one foot. As a result, the minimum roadway edge of pavement elevation for this section of Krome Avenue will vary from Elevation 8.00 NGVD to Elevation 10.00 NGVD. This means that the minimum edge of pavement elevation is anticipated to vary from one foot below the FEMA 100-year Base Flood Elevation to one foot above the FEMA 100-year Base Flood Elevation. While it may not be possible to be able to maintain the roadway at or above the FEMA 100-year Base Flood Elevation for the entire length of the project corridor, it is a significant improvement over the existing conditions because the proposed roadway profile will elevate Krome Avenue over the existing footprint. The proposed improvements will result in a significantly improved evacuation route.

The Federal Emergency Management Administration, in implementing the National Flood Insurance Program, established a system of building guidelines. All local and state building ordinances are based upon these guidelines. This project will comply with all applicable federal, state, and local ordinances relating to floodplains. In accordance with the FDOT’s latest edition of *Standard Specifications for Road and Bridge Construction*, all BMPs will be utilized during the construction phase of the project for erosion control and water quality considerations. The project alternatives are not expected to cause changes in flood stage and flood limits. Any minor





changes, if any, resulting from this project will not result in any adverse impacts on the natural and beneficial floodplain values or any changes in flood risk or damage.

It has been determined, through consultation with federal, state, and local water resource and floodplain management agencies that there is no regulatory floodway involvement on the proposed project and that the project will not support base floodplain development that is incompatible with existing floodplain management programs.

4.3.11 Coastal Zone Consistency

The FDEP has determined that this project is consistent with the Florida Coastal Management Program. A copy of the FDEP's letter (dated May 4, 2004) written in response to the AN has been enclosed in *Appendix O*.

4.3.12 Wildlife and Habitat

This project has been evaluated for potential impacts to threatened and endangered species in accordance with Section 7(c) of the Endangered Species Act of 1973, as amended, and Chapter 68A-27, FAC, "Rules Pertaining to Endangered and Threatened Species." In accordance with the FDOT *PD&E Manual*, Part 2, Chapter 27 – Wildlife and Habitat Impacts (dated October 1, 1991), an ESBA was prepared for this project, which is available for review at the FDOT District Six offices in Miami, Florida and is incorporated by reference.

The proposed right-of-way has been evaluated and habitat/listed species concerns have been identified and assessed for the proposed build alternatives for the Krome Avenue project. Upland and wetland vegetative communities within the project study area were evaluated in order to assess the Krome Avenue study area for the potential occurrence of federal and state-listed protected species (flora and fauna). Four upland vegetative community types were identified along the Krome Avenue study corridor: landscaped, ruderal, and agricultural; non-indigenous vegetation; pine rocklands (only at Owaissa Bauer Pineland Preserve Addition No. 1); and mixed hardwoods (only at the Florida Audubon Society property).

The protected federal animal and plant species identified as having the potential to occur within the project area and evaluated as part of the ESBA are shown in *Table 4-10*. The results of the ESBA indicate that only negligible adverse impacts to federally-protected animal species and no adverse impacts to federally-protected plant species are anticipated as a result of the proposed project. For each of the build alternatives (Alternatives 1 through 5), the potential listed species impacts have been determined to be nearly equivalent due to the similar configuration of the estimated limits of construction for each alternative along the study corridor, with the exception of the Owaissa Bauer Pineland Preserve Addition No. 1, where impacts have been substantially reduced through the design of a minimized roadway typical section, and the Florida Audubon Society property.





Table 4-10 – Federally-Listed Species with the Potential to Occur within the Project Area

Common Name	Scientific name	Federal Status	State Status	Occurrence Potential
Mammals				
West Indian manatee	<i>Trichechus manatus</i>	E	FE	Moderate
Birds				
wood stork	<i>Mycteria americana</i>	E	FE	Low
Everglade snail kite	<i>Rostrhamus sociabilis plumbeus</i>	E	FE	Low
Bald eagle*	<i>Haliaeetus leucocephalus</i>	NL	NL	Low
Reptiles				
American alligator	<i>Alligator mississippiensis</i>	T (S/A)	FT (S/A)	High
eastern indigo snake	<i>Drymarchon corais couperi</i>	T	FT	Moderate
Plants				
Blodgett's wild-mercury	<i>Argythamnia blodgettii</i>	C	E	High
Deltoid spurge	<i>Chamaesyce deltoidea</i>	E	E	High
Garber's spurge	<i>Chamaesyce garberi</i>	T	E	Moderate
Small's milkpea	<i>Galactia smallii</i>	E	E	Moderate
Carter's flax	<i>Linum carteri</i> var. <i>carteri</i>	C	E	High
Tiny polygala, Small's milkwort	<i>Polygala smallii</i>	E	E	Moderate

Source: USFWS, FWC

* The bald eagle is not listed by the USFWS or FWC as a protected species, but this species is protected by the *Bald Eagle and Golden Eagle Protection Act* and the *Migratory Bird Treaty Act*.

E = Endangered; T = Threatened; C = Candidate; SSC = Species of Special Concern; P = Protected; N = Not Listed; T (S/A) = Threatened due to Similarity of Appearance

No manatees were observed during the field surveys, but the probability of occurrence is moderate due to the accessibility of available habitat through the local canal systems (C-102/Princeton and C-103/Mowry canals) bisecting the study corridor. As a portion of these canals may be disturbed by one or more of the project alternatives, BMPs will be implemented in accordance with the latest edition of *FDOT Standard Specifications for Road and Bridge Construction*, and FWC's *Standard Manatee Conditions for In-Water Work* will be employed during all in-water construction activities associated with this project. Therefore, the FDOT and FHWA have made an affect determination of “*may affect, but not likely to adversely affect*” for the West Indian manatee.

Although the project lies within the core foraging area of three active wood stork colonies located approximately 8.5 miles, 9.3 miles and 17.1 miles northwest of the project corridor, no suitable foraging habitat occurs along the project corridor (the canal banks along the project corridor are typically very steep and do not provide any foraging habitat). In addition, no wood storks were observed during the field surveys. The only potential impact to wood storks from the proposed project would be temporary disruption of local flight paths from the nesting areas (all greater than eight miles from the project corridor, as noted above) to any nearby CFA due to the construction activities (noise, etc.). However, due to the distance of the nearest colonies from the project corridor and the lack of any suitable foraging habitat in the project area, impacts are very unlikely. Therefore, FDOT and FHWA have made an affect determination of “*no effect*” for the wood stork as a result of the construction of any of the build alternatives associated with the proposed project.





No snail kites were observed during the field surveys and no designated critical habitat for this species exists within the project area. Since no foraging habitat for this species exists in the vicinity of the project corridor (the canal banks along the project corridor are typically very steep and do not provide any foraging habitat), no adverse impacts are anticipated as a result of the build alternatives. Therefore, the FDOT and FHWA have made an affect determination of “*no effect*” for the Everglade snail kite as a result of the proposed project.

The bald eagle was delisted by the USFWS in August 2007 and the FWC in April 2008. Although the bald eagle is no longer federally or state-listed, this species is still protected under federal regulation by the *Bald Eagle and Golden Eagle Protection Act* and the *Migratory Bird Treaty Act*. There have been no visual occurrences of bald eagles within the project area (fly-overs), and no known nests or observed foraging habitat is located within close proximity to the study corridor. Construction will not substantially reduce available foraging, roosting, or nesting habitat for this species. Therefore, no adverse impacts to the bald eagle are anticipated as a result of the proposed project.

Due to the presence of habitat (canals) in and adjacent to the study area, the probability of occurrence of the American alligator is high. However, much of the habitat (i.e., the canals) within the limits of the project experiences continual disturbance from adjacent roadway and commercial/residential land use activities minimizing its use by this species. Additionally, it is important to note that no habitat for the American crocodile exists within or adjacent to the project area; therefore, the crocodile was not evaluated as part of this study and no impacts would occur to the crocodile. Typically, alligators will vacate the immediate vicinity of an area undergoing disturbance as a result of construction activities. The FDOT’s contractor will be advised of state and local laws regarding the harassment of alligators prior to any construction activities to further reduce the potential for any adverse impact to the American alligator. Therefore, the FDOT and FHWA have made an affect determination of “*may affect, not likely to adversely affect*” for the American alligator.

The federally-listed threatened eastern indigo snake has been reported as occurring in the nearby Camp Owaissa Bauer property located approximately 500 feet east of the corridor. Therefore, as a precaution, staked silt fence will be erected in the vicinity of the Owaissa Bauer Pineland Preserve Addition No. 1 and the Florida Audubon Society property prior to construction to minimize the probability of individuals wandering into the construction corridor. To protect the Eastern indigo snake during construction, the FDOT will incorporate the most current protection guidelines, entitled *Standard Protection Protocols for the Eastern Indigo Snake*, into the final project design and will require that the construction contractor abide strictly to the guidelines during construction. Therefore, the FDOT and FHWA have made an affect determination of “*may affect, not likely to adversely affect*” for the Eastern indigo snake.

Foraging habitat for three state-listed bird species, including the Southeastern American kestrel, tricolored heron and white ibis, is present within the project study area. This was evidenced by direct observations of foraging during the field investigations. Potential impacts to these species, if any, will be limited to temporary disruption of foraging along the fringe vegetation directly adjacent to the construction area. No roosting or nesting habitat for these species was observed for any of these bird species; thus, no adverse impacts to these state-protected avian species are expected to occur as a result of project construction.





The state-protected species of special concern, Florida tree snail, was observed within the Owaissa Bauer Pineland Preserve Addition No. 1 and the Florida Audubon Society property. Prior to vegetation removal or construction activities, FDOT will conduct a biological survey within the limits of the proposed project. Individual snails observed on the trees to be impacted will be collected and relocated a safe distance outside of the areas of proposed impact per FWC guidelines (Shaw, 2006, Tree Snail Relocation Protocol). Therefore, no adverse impacts to this species are anticipated.

No federally-listed plant species were observed within the study limits. However, the federally-listed endangered deltoid spurge has been recorded by Miami-Dade County within the Owaissa Bauer Pineland Preserve Addition No. 1 property and the plant was observed approximately 150 feet from the construction limits of the widest build alternative (Alternative 3). Therefore, no adverse direct impacts to this federally-listed plant species are anticipated as a result of this project. The investigation also indicated that two additional federally-listed plant species (Garber's spurge and tiny polygala) were identified as having the potential to exist within the project area. However, none of these plant species were observed within or immediately adjacent to areas proposed to be impacted from any of the build alternatives. Therefore, the FDOT and FHWA have made an affect determination of "no effect" for these three federally-listed plants.

Field investigations within the proposed limits of the five build alternatives at the Owaissa Bauer Pineland Preserve Addition No. 1 site revealed the presence of two plant species with federal Candidate status: Carter's flax and Blodgett's wild-mercury. Please note that according to the USFWS, plant species with federal candidate status do not receive federal statutory protection, although the USFWS recommends that candidate species are voluntarily protected as if they were federally-listed, if possible. In addition, 27 state-listed protected plant species were observed within or directly adjacent to the proposed study corridor. All of these plants were observed to be present either at the Owaissa Bauer Pineland Preserve Addition No. 1 or at the Florida Audubon Society property. No state and federally-protected plant species were observed to exist at any other location along the study corridor.

Per Section 581.185(8)(c) Florida Statute, statutory protection of state-listed plants is not applicable if the clearing of land is performed by a public agency when acting in the performance of its obligation to provide service to the public excerpted below:

(8) EXEMPTIONS.—No provision of this section shall apply to:

(c) The clearing of land by a public agency or a publicly or privately owned public utility when acting in the performance of its obligation to provide service to the public.

However, individual state-listed plant species will be avoided wherever possible during construction using BMPs and the FDOT's standard protection measures outlined in the latest version of the *FDOT Standard Specifications for Road and Bridge Construction (Section 7-11.1, Preservation of Property)*, which will include the use of temporary fencing to avoid trampling, tire rutting, etc. to any protected plants located near the perimeter of proposed construction activities. In addition, to minimize the potential for adverse impacts to listed plant species, prior to construction, the FDOT will reassess the viability of relocating listed plant species to a suitable area outside of the planned limits of construction, such as other graminoid-dominated areas of the site where these species are known to currently occur. The relocations, if determined





to be viable, will be conducted just prior to commencement of roadway construction activities. Prior to proposing any plant relocations, coordination will be conducted with Miami-Dade County EEL Program representatives for approval and to discuss potential recipient sites.

Based on the review of the protected species contained within the various informational sources, discussed in [Section 3.3.12](#) and subsections of this document, wildlife agency coordination/correspondence, and the field investigations conducted for this project, only minor short-term adverse impacts are anticipated to occur to federally-protected wildlife or their critical habitats and no long-term adverse impacts are anticipated to occur as a result of any of the build alternatives. No short-term or long-term adverse impacts are anticipated to occur to federally-protected plant species as a result of any of the build alternatives. Based on the above considerations, the FDOT and FHWA have made the following affect determinations for individual species: “*may affect, but not likely to adversely affect*” for the West Indian manatee, American alligator, and Eastern indigo snake and a determination of “*no effect*” for the wood stork, Everglade snail kite, deltoid spurge, Garber’s spurge, and tiny polygala plants. The ESBA will be submitted to the USFWS for review following the public availability of this *Draft Environmental Impact Statement*, and a formal concurrence letter is expected to be issued by the USFWS in order to fulfill the requirements of Section 7(c) of the Endangered Species Act, as amended. The USFWS correspondence will be included in the *Final Environmental Impact Statement*.

4.3.12.1 Owaissa Bauer Pineland Preserve Addition No. 1

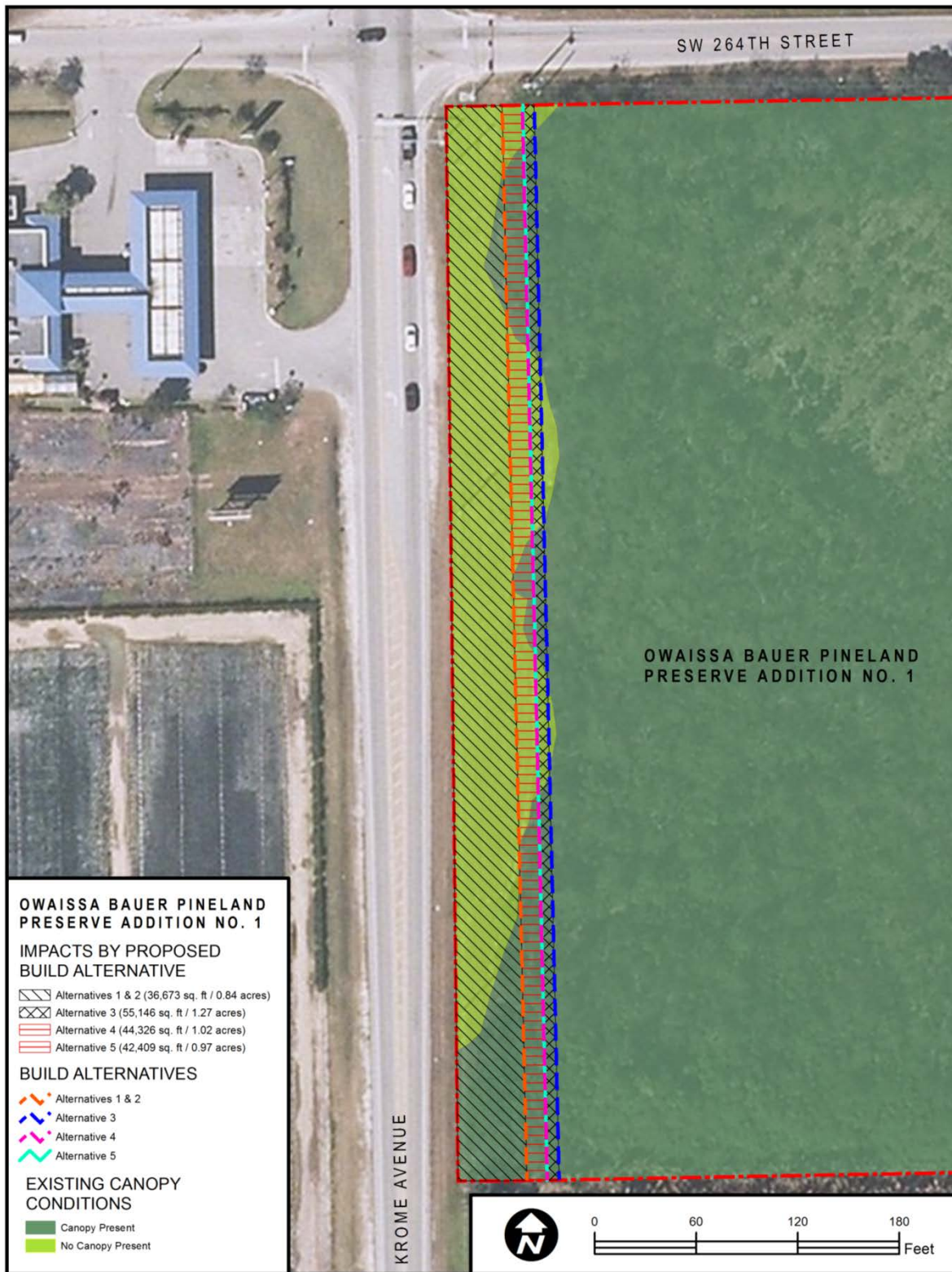
It is the determination of the FDOT that complete avoidance of the 9.39-acre Owaissa Bauer Pineland Preserve Addition No. 1 is not feasible while providing for the necessary safety and traffic-related improvements. [Figure 4-2](#) depicts the limits of each of the five build alternatives in the vicinity of the Owaissa Bauer Pineland Preserve Addition No. 1 and a summary of the proposed impacts to the Owaissa Bauer Pineland Preserve Addition No. 1 site per each build alternative is shown in [Table 4-11](#).

**Table 4-11 – Encroachment into Owaissa Bauer Pineland Preserve Addition No. 1
per Build Alternative**

Alternative ID	Impacts (feet ²)	Impacts (acres)
Alternative 1	36,673	0.84
Alternative 2	36,673	0.84
Alternative 3	55,146	1.27
Alternative 4	44,326	1.02
Alternative 5	42,409	0.97

Note that as depicted on [Figure 4-2](#), Alternative 3, the widest alternative footprint analyzed, is the most impacting alternative and Alternatives 1 and 2 are the least impacting alternatives that encroach beyond the existing FDOT right-of-way into the EEL site. The total area of potential impact from Alternative 3 is approximately 1.27 acres and the total area of potential impact from Alternatives 1 and 2 (impacts are equal for both alternatives) is approximately 0.84 acres.





*Figure 4-2 – Owaissa Bauer Pineland Preserve Addition No. 1
Impacts by Proposed Build Alternative*



Coordination has been conducted with the Miami-Dade County EEL Program representatives. To date, three meetings were held with EEL Program representatives to discuss the Krome Avenue PD&E project. Copies of meeting minutes from each of these meetings have been enclosed in [Appendix P](#). The purpose of the first meeting, which was held on July 20, 2005, was to introduce the project to the EEL Program representatives and its potential to impact the Owaissa Bauer Pineland Preserve Addition No. 1 parcel and receive preliminary feedback from those representatives. Following the meeting, the FDOT requested specific information regarding the parcel from DERM. As a response, DERM issued a “Statement of Significance” letter on April 11, 2006 (see [Appendix Q](#)) which included a general description of the EEL parcel and copies of the Miami-Dade County EEL Ordinance (Chapter 24-50), Natural Forest Community regulations (Chapter 24-49), Owaissa Bauer Pineland Preserve Addition No.1 Biological Evaluation, Owaissa Bauer Pineland Preserve Addition No. 1 FY 2004-2005 Work Plan and Budget, and the Owaissa Bauer Pineland Preserve Addition No. 1 Plant List (compiled by the Institute for Regional Conservation).

The second meeting held on April 27, 2006, was conducted to further explain the project and discuss the alternatives and potential for on-site mitigation, if needed. In response to the second meeting, the EEL representatives requested specific information regarding each alternative including an aerial overlay showing the limits of construction per alternative, which was submitted to EEL in early June 2006 by FDOT. EEL representatives requested that further evaluation be conducted with the development of an “Avoidance Alternative” to completely eliminate impacts to the Owaissa Bauer Pineland Preserve Addition No. 1 parcel (note that comments received from the USFWS and the FWC through the ETDM Screening of the project also recommended an alternative design to completely avoid impacts to the Owaissa Bauer Pineland Preserve Addition No. 1 parcel). However, upon further analysis by the FDOT, this “Avoidance Alternative” was considered not feasible due to the additional right-of-way impacts and costs (approximately \$8.9 Million) associated with the relocations of businesses and residences located on the opposite side of Krome Avenue (see [Figure 4-3](#)).



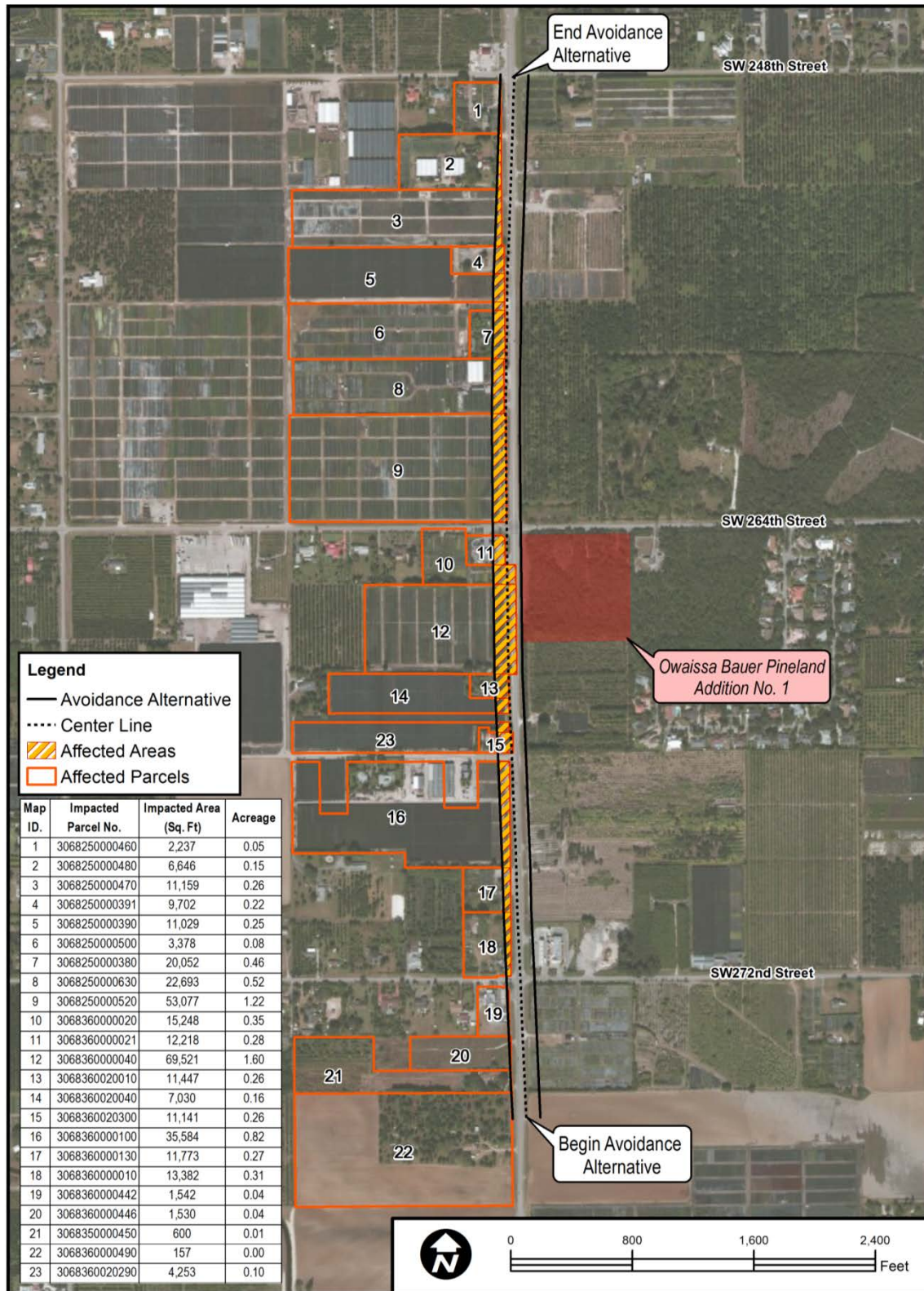


Figure 4-3 – Owaissa Bauer Pineland Preserve Addition No. 1 Avoidance Alternative





Since complete avoidance of the EEL parcel was not possible, additional engineering analysis was conducted resulting in a “Minimization Treatment” that would reduce the potential impacts to the Owaissa Bauer Pineland Preserve Addition No. 1 site to the greatest extent practicable while maintaining safe engineering practices (i.e., roadway geometry, etc.). A third meeting was held at the Owaissa Bauer Pineland Preserve Addition No. 1 site on June 14, 2007 with EEL and Natural Areas Management to discuss the coordination that occurred with the FDOT District VI Internal Design Unit regarding the potential minimization treatment. The proposed minimization treatment included a reduced typical section with a guardrail in the immediate area of the Owaissa Bauer Pineland Preserve Addition No.1 parcel (from the southeast corner of the intersection of Krome Avenue at SW 264th Street south for approximately 750.85 linear feet – Station 212+08.67 to Station 219+59.52) (see Appendix H of the *Preliminary Engineering Report* for the Concept Plans, which reference the project station numbers). The minimization treatment consists of a reduced outside shoulder/border width in the northbound direction due to the elimination of drainage features (swale) and placement of a guardrail (*Figure 4-4*). This minimization treatment can be applied to all five build alternatives and consists of the following elements, which will be applied to the outside edge of the northbound travel lane:

- Eight (8') paved outside shoulder on the northbound direction
- Thirteen (13') border width including guardrail on the northbound direction
- Design Speed is 65 MPH



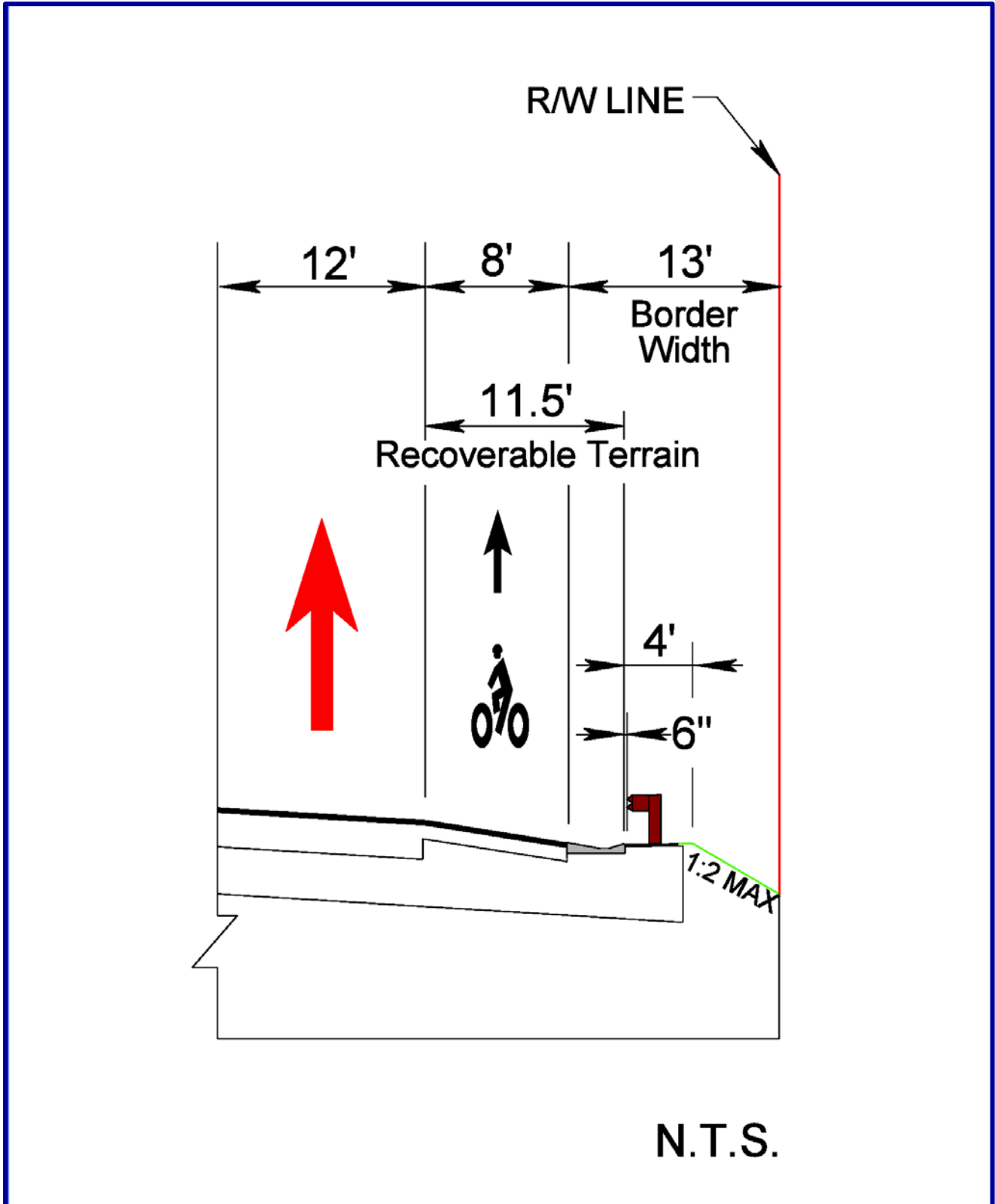


Figure 4-4 – Proposed Owaissa Bauer Minimization Treatment (Typical)





The minimization treatment reduces the overall proposed improvements to Krome Avenue at the Owaissa Bauer Pineland Preserve Addition No. 1 site by a linear distance range of 18 to 31 feet in width and reduces the impact area from a range of approximately 0.84 acres (Alternatives 1 and 2) to 1.27 acres (Alternative 3) to a minimum impact range of approximately 0.53 acres (Alternatives 1 and 2) to 0.82 acres (Alternative 3) depending on which build alternative the treatment is applied to (see [Table 4-12](#), below, and see [Figure 4-5a](#) and [Figure 4-5b](#) for a depiction of the minimization treatment with respect to the build alternatives).

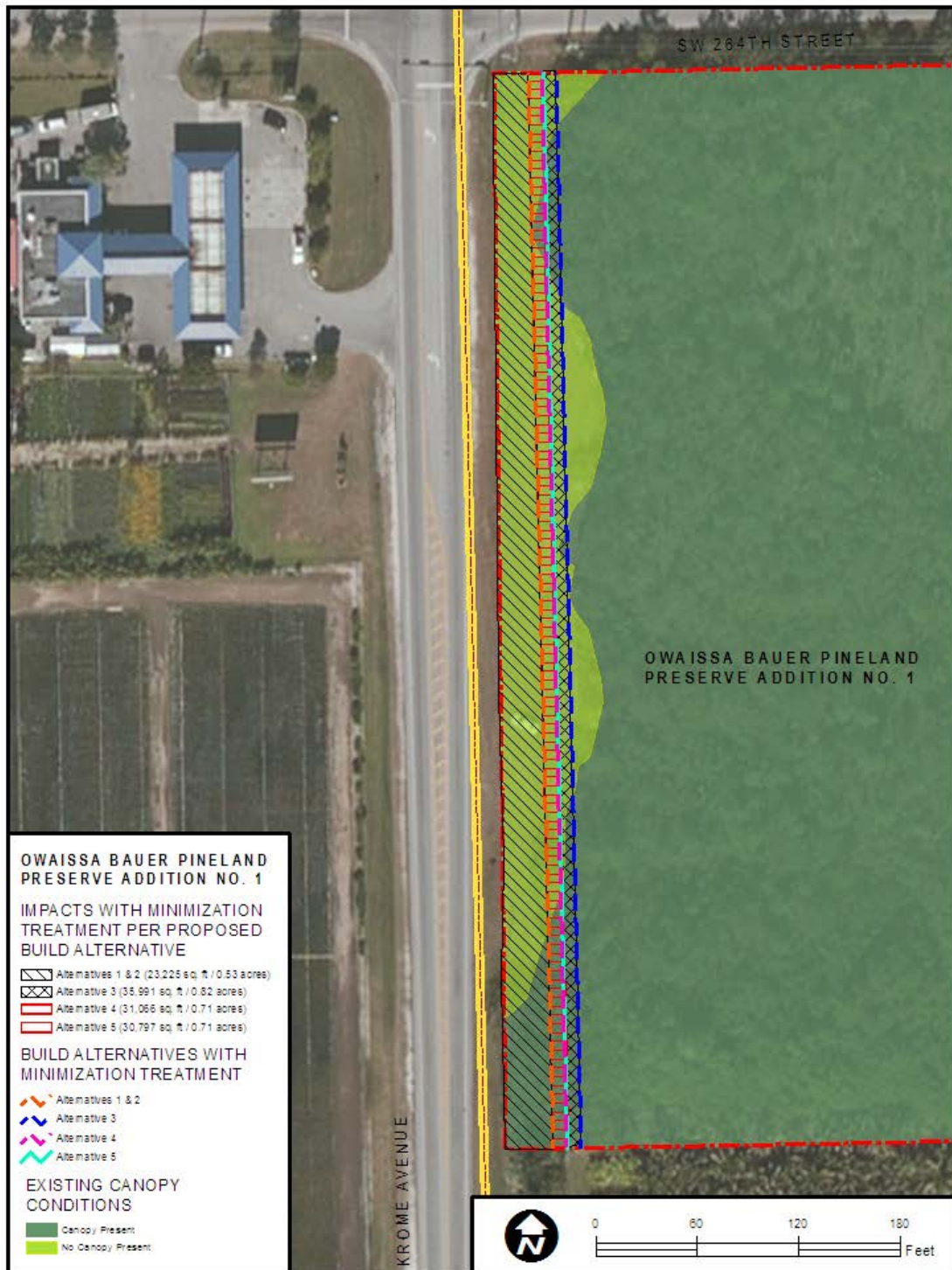
Table 4-12 – Impacts with Minimization Treatment per Alternative

Alternative	Linear Foot Reduction of Impact	Minimized Impacts (acres)	Minimized Impacts (square feet)	Area Preserved (acres)	Area Preserved (square feet)
Alternative 1	21	0.53	23,225	0.31	13,366
Alternative 2	21	0.53	23,225	0.31	13,366
Alternative 3	31	0.82	35,991	0.45	19,730
Alternative 4	21	0.71	31,066	0.31	13,366
Alternative 5	18	0.71	30,797	0.26	11,456

The net difference or additional area preserved per each build alternative is also depicted in [Table 4-12](#), above. With the minimization treatment applied to alternatives 1 and 2, an additional 0.31 acres of the Owaissa Bauer Pineland Preserve Addition No. 1 site will be preserved. With the minimization treatment applied to Alternative 3, an additional 0.45 acres of the site will be preserved. With the minimization treatment applied to Alternative 4, an additional 0.31 acres of the site will be preserved. With the minimization treatment applied to Alternative 5, an additional 0.26 acres of the site will be preserved.

Note that with the minimization treatment applied to the typical sections, the majority of remaining impacts will occur within the westernmost edge of the site, which appears to be regularly disturbed by mowing, vehicle off-road parking and pedestrian traffic. In addition, as part of the minimization treatment, several protection measures will be provided for the remainder of the Owaissa Bauer Pineland Preserve Addition No. 1 site through the addition of guardrail and possibly fencing along the Krome Avenue side of the site (pending approval from the Miami-Dade County EEL Program representatives). These elements of the design will help to keep vehicles from driving or parking on the parcel and subsequently impacting the adjacent EEL parcel; particularly local fruit and vegetable venders, which are known to set up make-shift produce stands along the roadway at this location. These added design elements will act as permanent structural barriers that will function to reduce the potential for indirect impacts from human-induced disturbance (e.g., minimize debris and refuse, pedestrian access, vehicular access, etc.) to occur to the remainder of the EEL parcel. The minimization treatment typical section would be employed at the Owaissa Bauer Pineland Preserve Addition No. 1 site regardless of which alternative moves forward into final design/construction.





**Figure 4-5 – Owaissa Bauer Pineland Preserve Addition No. 1
Impacts by Proposed Build Alternative (with Minimization Treatment)**





The 9.39-acre Owaissa Bauer Pineland Preserve Addition No. 1 parcel consists of a 6.61-acre pine rockland community with the remaining 2.78 acres consisting primarily of a weedy herbaceous disturbed area, a paved roadway that runs north-south through the center of the site, and the grassy road shoulder along Krome Avenue (see *Figure 4-6*). A detailed habitat and plant survey was conducted in 2006 and again in 2010 on the Owaissa Bauer Pineland Preserve Addition No. 1 parcel within the limits of the proposed build alternatives for this project. A summary of the proposed impacts per vegetation community type of each of the five proposed build alternatives with and without the minimization treatment at this location follows in *Table 4-13*.



Figure 4-6 – View of Weedy Herbaceous Disturbed Area (at Owaissa Bauer Pineland Preserve Addition No. 1)

Table 4-13 – Vegetation Community Impacts within Owaissa Bauer Pineland Preserve Addition No. 1

Alternative	Without Minimization Treatment		With Minimization Treatment	
	Canopy Impacts [acres(foot ²)]	Herbaceous Impacts [acres(foot ²)]	Canopy Impacts [acres(foot ²)]	Herbaceous Impacts [acres(foot ²)]
Alternative 1	0.31 (13,522)	0.53 (23,151)	0.12 (5,054)	0.42 (18,170)
Alternative 2	0.31 (13,522)	0.53 (23,151)	0.12 (5,054)	0.42 (18,170)
Alternative 3	0.72 (31,529)	0.54 (23,618)	0.29 (12,521)	0.53 (23,070)
Alternative 4	0.47 (20,686)	0.54 (23,618)	0.22 (9,412)	0.50 (21,653)
Alternative 5	0.43 (18,809)	0.54 (23,618)	0.22 (9,412)	0.50 (21,653)





The minimization treatment reduces the overall proposed impacts to the existing canopy vegetation by approximately 51 to 61% when comparing it to the areas without the treatment applied, and reduces the overall proposed impacts to the existing herbaceous vegetation by approximately 2 to 21% when compared to the areas without the treatment applied (see [Figure 4-5](#) for a depiction of the minimization treatment with respect to the build alternatives). The minimization treatment reduces the canopy impact from approximately 0.31 acres with alternatives 1 and 2 to a minimum impact of approximately 0.12 acres, a reduction of approximately 61%; from approximately 0.72 acres with Alternative 3 to a minimum impact of approximately 0.29 acres, a reduction of approximately 60%; from approximately 0.47 acres with Alternative 4 to a minimum impact of approximately 0.22 acres, a reduction of approximately 55%; and from approximately 0.43 acres with Alternative 5 to a minimum impact of approximately 0.22 acres, a reduction of approximately 51%. The minimization treatment also reduces the herbaceous impact from approximately 0.53 acres with Alternatives 1 and 2 to a minimum impact of approximately 0.42 acres, a reduction of approximately 21%; from approximately 0.54 acres with Alternative 3 to a minimum impact of approximately 0.53 acres, a reduction of approximately 2%; and from approximately 0.54 acres with Alternatives 4 and 5 to a minimum impact of approximately 0.50 acres, a reduction of approximately 7%. Impact acreages will be further refined as detailed construction plans are developed during the final design phase of the project.

The results of the 2006 survey indicated that the following listed plants were observed within the limits of construction of each of the build alternatives, within the mowed areas along Krome Avenue and along the edge of the forested habitat: pineland golden trumpet, Blodgett's wild mercury, Long Key locustberry, Florida silver palm, christmasberry, Florida shrub thoroughwort, Carter's flax, pineland lantana, Simpson's stopper, Bahama ladder brake, Small-leaf snoutbean, Chapman's wild sensitive plant, Everglades greenbrier, tetrazygia, cardinal airplant, rocklands noseburn, and coontie. No federally-listed plants were observed to exist within the limits of construction of any of the build alternatives. The deltoid spurge was observed approximately 150 feet from the limits of construction of the widest build alternative (Alternative 3). Please reference the 2006 survey results map (aerial photographs) depicting the approximate locations of the observed plant species with respect to the limits of each of the five proposed build alternatives and the minimization treatment at this location in [Figure 3-14](#).

The results of the 2010 survey indicated that the following state-listed plants were observed within the limits of construction of each of the build alternatives, within the mowed areas along Krome Avenue and along the edge of the forested habitat: pineland golden trumpet, Blodgett's wild mercury, white sunbonnet, Florida silver palm, christmasberry, Florida shrub thoroughwort, pineland lantana, Chapman's wild sensitive plant, Everglades greenbrier, tetrazygia, and coontie. No federally-listed plants were observed during the survey. Please reference the 2010 survey results map (aerial photographs) depicting the approximate locations of the observed plant species with respect to the limits of each of the five proposed build alternatives and the minimization treatment at this location in [Figure 3-15c](#) and [Figure 3-15d](#).





Note that some of the individual plant species were not observed during both surveys since these plants consist of a mixture of perennial and annual species, which means that they germinate, flower, seed and die-off on different schedules. Therefore, some of these plants may appear at a location one year and may be absent at the same location in the subsequent year.

The minimization treatment reduces the impacts to the number of individual protected plants observed to exist within the Owaissa Bauer Pineland Preserve Addition No. 1 parcel to the greatest extent practicable. Although the limits of the minimization treatment are depicted on *Figure 4-5a* and *Figure 4-5b*, impacts to the existing substrate or any individual plants beyond the proposed back of guardrail (also shown on *Figure 4-5a* and *Figure 4-5b*) will also be minimized to the maximum extent practicable. Based on the observed locations of Carter's flax in the 2006 and 2010 surveys, beyond the proposed back of guardrail, this species will likely remain unimpacted with implementation of Alternatives 1, 2, or 5 with the minimization treatment applied.

According to FDACS (Dan Phelps, telephone conversation, June 2006 and reconfirmed in 2011 via statutory review), statutory protection of state-listed plants is not applicable if the clearing of land is performed by a public agency when acting in the performance of its obligation to provide service to the public [Section 581.185(8)(c) Florida Statute], excerpted below:

*“(8) EXEMPTIONS.—No provision of this section shall apply to:
(c) The clearing of land by a public agency or a publicly or privately owned public utility when acting in the performance of its obligation to provide service to the public.”*

However, individual state-listed plant species will be avoided wherever possible during construction using BMPs and the FDOT's standard protection measures outlined in the latest version of the *FDOT Standard Specifications for Road and Bridge Construction (Section 7-11.1, Preservation of Property)*, which will include the use of temporary fencing to avoid trampling, tire rutting, etc. to any protected plants located near the perimeter of proposed construction activities. In addition, to minimize the potential for adverse impacts to listed plant species, prior to construction, the FDOT will reassess the viability of relocating listed plant species to a suitable area outside of the planned limits of construction, such as other graminoid-dominated areas of the site where these species are known to currently occur. The relocations, if determined to be viable, will be conducted just prior to commencement of roadway construction activities. Prior to proposing any plant relocations, coordination will be conducted with Miami-Dade County EEL Program representatives for approval and to discuss potential recipient sites. If required, a relocation plan depicting the source and recipient site(s) as well as details of the method(s) of relocation will be provided to the county for review and approval prior to conducting the relocation activities. In addition and at the discretion of Miami-Dade County EEL Program representatives, the county may opt to relocate any protected plants proposed to be impacted prior to construction. Further coordination is expected to occur with Miami-Dade County upon their review of the ESBA and this document.





The FDOT's contractor will install temporary construction fencing at the limits of construction along the Owaissa Bauer Pineland Preserve Addition No. 1 for plant protection purposes and maintain the temporary construction fencing until completion of construction at this location; no impacts will occur to vegetated areas outside of the limits of construction in accordance with the *FDOT Standard Specifications for Road and Bridge Construction (Section 7-11.1, Preservation of Property)*. Additionally, St. Augustine grass will not be planted in the FDOT right-of-way along the Owaissa Bauer Pineland Preserve Addition No. 1 to avoid future encroachment of this landscaping grass into the adjacent natural areas. Therefore, impacts to state-listed vegetation within the limits of the Owaissa Bauer Pineland Addition No. 1 site will be minimized to the greatest extent practicable.

The FDOT had verbally approached the Miami-Dade County EEL Program representatives with mitigation options to include an option for fencing the remaining habitat, an option for exotic/nuisance treatment within the remaining habitat and an option to remove the existing paved road that exists within the parcel limits. However, per coordination with the Miami-Dade County EEL Program representatives, EEL staff advised that they would not provide any further comments on the project until the FDOT's Draft Environmental Impact Statement is released to agencies and the public. Therefore, coordination will continue with the Miami-Dade County EEL Program representatives and the formulation of a suitable mitigation plan for the proposed impacts to the Owaissa Bauer Pineland Preserve Addition No. 1 is still pending at the time of this document.

During the final design phase of the project, in order to approve a proposed easement within the Owaissa Bauer Pineland Preserve Addition No. 1 parcel, the FDEP requires submittal of the "Upland Easement Application" to the State of Florida Board of Trustees of the Internal Improvement Trust Fund for review to apply for easement interest in the land. The application requires a resolution from the Miami-Dade County Board of County Commissioners and written approval from the managing agency (Miami-Dade County EEL and MDPROS). The Acquisition and Restoration Council will need to approve the project (easement) and advise if the project is consistent with the Board of Trustees' Linear Facilities Policy (policy emphasizes avoidance and minimization of impacts to protected uplands). The Acquisition and Restoration Council is a ten-member group with representatives from four state agencies, four appointees of the Governor, one appointee by the Florida Fish and Wildlife Conservation Commission (FWC), and one appointee by the Commissioner of FDACS. After the Acquisition and Restoration Council approval, the Board of Trustees will have delegated authority to approve the easement. Although the Acquisition and Restoration Council makes the ultimate decision, they normally defer to the recommendations of the managing agency. Justification for the request should accompany the application to include right-of-way impacts based on the different alternatives analyzed, costs of impacts to private property vs. the EEL property, roadway safety and capacity issues, emergency/hurricane evacuation concerns, economic impacts to the area, etc. A mitigation plan will also be required that will be sufficient to compensate for any potential impacts to protected resources resulting from the proposed project. As mentioned above, the application will commence during the final design phase of the project following receipt of concurrence from Miami-Dade County EEL and MDPROS.





4.3.12.2 Florida Audubon Society Property

As previously mentioned, this two-acre unmarked/undesignated site, owned by the Florida Audubon Society, site has no special land use designation (i.e., park, preserve, etc.). However, the land owner has designated the site as a bird watching preserve or sanctuary. In addition, the site does not appear to be actively managed and has both native and exotic hammock species growing throughout, which appear to have been planted in order to attract birds and butterflies for viewing purposes. Since the site is locally notable in regards to bird and butterfly viewing, an assessment was conducted to determine the extent of encroachment to this site as a result of the proposed build alternatives. An aerial photograph depicting the limits of each of the five proposed build alternatives at this location are depicted in **Figure 4-7**. A summary of the proposed impacts to the site per each build alternative follows in **Table 4-14**.

Table 4-14 – Encroachment into the Florida Audubon Society Property per Build Alternative

Alternative ID	Impacts (feet ²)	Impacts (acres)
Alternative 1	0	0
Alternative 2	0	0
Alternative 3	4,881	0.11
Alternative 4	0	0
Alternative 5	0	0

Note that as depicted on the figure in **Figure 4-7**. Alternative 3, the widest alternative footprint analyzed, is the only build alternative that encroaches beyond the existing FDOT right-of-way into the Florida Audubon Society property. The total area of potential impact to the Florida Audubon Society property from Alternative 3 is approximately 0.11 acres (4,881 square feet). Since this parcel is privately-owned by the Florida Audubon Society, the FDOT's normal right-of-way acquisition guidelines would apply if impacts were to occur as a result of this project.

The site does not appear to be actively managed; however, several state-listed plant species exist within its limits. Note that no federally-protected plant species were observed to exist within the limits of this site. In addition, no protected wildlife species were observed within the limits of this site during the time of the field assessments. A detailed plant survey was conducted in January 2011, within the limits of the proposed build alternatives in the vicinity of this site (note that the survey included the plants located in FDOT roadway right-of-way and the Florida Audubon Society property). An aerial photograph depicting the approximate locations of the observed state-protected plant species with respect to the limits of each of the five proposed build alternatives at this location are also depicted in **Figure 4-7**. A summary of the proposed impacts per each build alternative follows in **Table 4-15**.



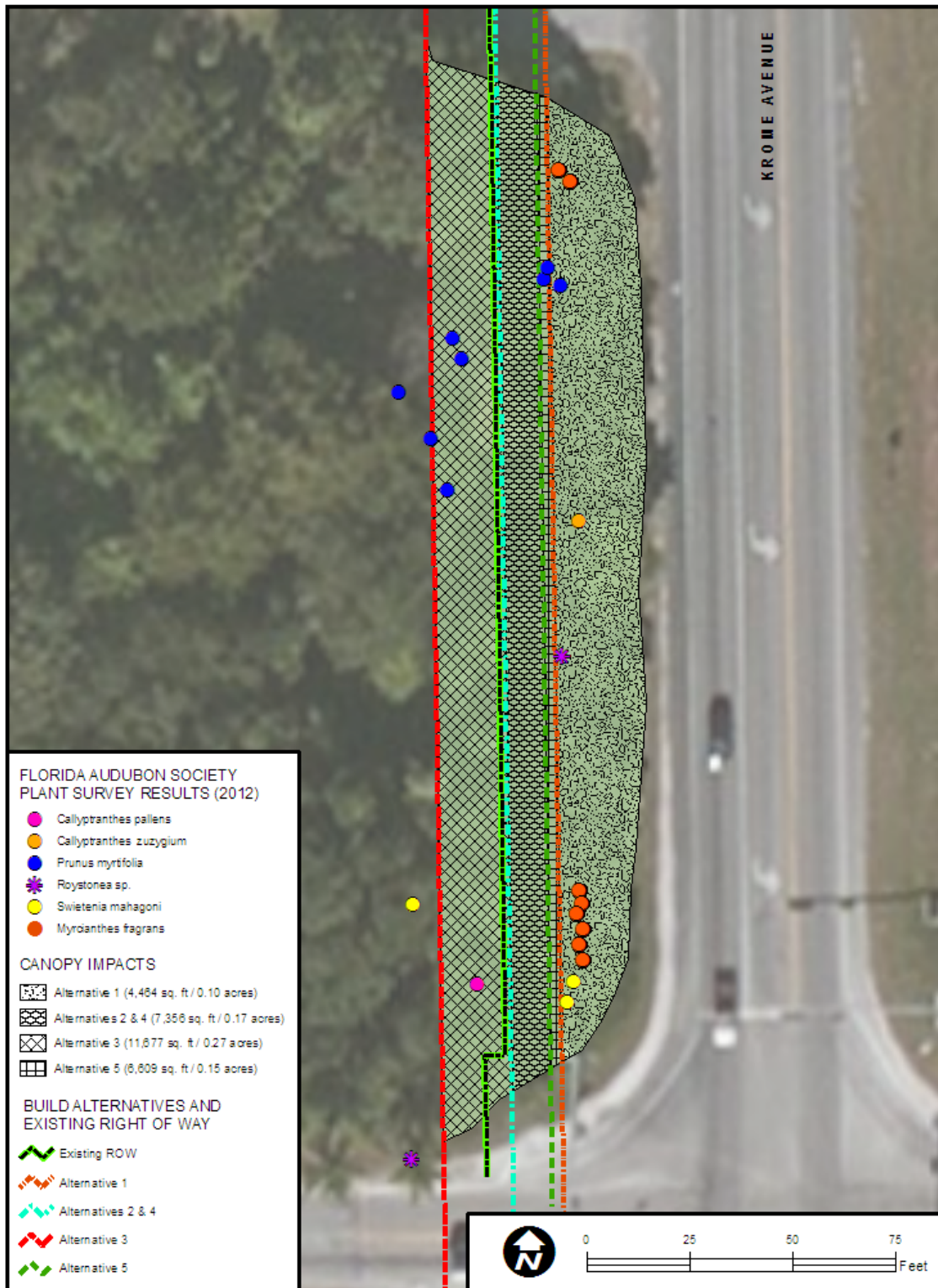


Figure 4-7 – Florida Audubon Society Property Tree Survey (2012)





Table 4-15 – Vegetative Canopy¹² Impacts within and Directly Adjacent to the Florida Audubon Society Property

Alternative ID	Canopy Impacts (feet ²)	Canopy Impacts (acres)	State-Listed Plants Affected
Alternative 1	4,464	0.10	<i>Swietenia mahagoni</i> , <i>Myrcianthes fragrans</i> , <i>Calypttranthes zuzygium</i> , <i>Roystonea</i> sp., <i>Prunus myrtifolia</i>
Alternative 2	7,356	0.17	<i>Swietenia mahagoni</i> , <i>Myrcianthes fragrans</i> , <i>Calypttranthes zuzygium</i> , <i>Roystonea</i> sp., <i>Prunus myrtifolia</i>
Alternative 3	11,677*	0.27*	<i>Swietenia mahagoni</i> , <i>Myrcianthes fragrans</i> , <i>Calypttranthes zuzygium</i> , <i>Roystonea</i> sp., <i>Prunus myrtifolia</i> , <i>Calypttranthes pallens</i>
Alternative 4	7,356	0.17	<i>Swietenia mahagoni</i> , <i>Myrcianthes fragrans</i> , <i>Calypttranthes zuzygium</i> , <i>Roystonea</i> sp., <i>Prunus myrtifolia</i>
Alternative 5	6,609	0.15	<i>Swietenia mahagoni</i> , <i>Myrcianthes fragrans</i> , <i>Calypttranthes zuzygium</i> , <i>Roystonea</i> sp., <i>Prunus myrtifolia</i>

*Note that of the 0.27 acres (11,677 square feet) assessed; only 0.09 acres (3,915 square feet) of canopy will be impacted within the limits of the Florida Audubon Society property. The remainder lies within FDOT right-of-way.

Estimates show that Alternative 1 would directly impact approximately 0.10 acres of vegetative canopy; Alternative 2 would directly impact approximately 0.17 acres of vegetative canopy; Alternative 3 would directly impact approximately 0.27 acres of vegetative canopy; Alternative 4 would directly impact approximately 0.17 acres of vegetative canopy; and Alternative 5 would directly impact approximately 0.15 acres of vegetative canopy. Note that impacts to subcanopy and herbaceous species are included in the canopy impact calculations shown above due to the presence of canopy cover throughout the entire area assessed. Impact acreages will be further refined as detailed construction plans are developed during the final design phase of the project.

As listed in [Table 4-15](#), above, the results of the survey indicated that the following state-listed plants were observed within the limits of construction of each of the build alternatives (see [Table 4-10](#) for a list of state-protected species proposed to be impacted per each alternative): West Indian mahogany, Simpson's stopper, Myrtle-of-the-River, Florida royal palm, West Indian cherry, and spicewood. Within the limits of the Florida Audubon Society property, only West Indian cherry and spicewood exist within the footprint of Alternative 3, the widest alternative analyzed.

According to FDACS (Dan Phelps, telephone conversation, June 2006 and reconfirmed in 2011 via statutory review), statutory protection of state-listed plants is not applicable if the clearing of land is performed by a public agency when acting in the performance of its obligation to provide service to the public [Section 581.185(8)(c) Florida Statute], excerpted below:

¹² Canopy refers to aerial extent of tree canopy cover including State-listed and non-listed plant species.





“(8) *EXEMPTIONS.*—No provision of this section shall apply to:
(c) *The clearing of land by a public agency or a publicly or privately owned public utility when acting in the performance of its obligation to provide service to the public.*”

However, individual state-listed plant species will be avoided wherever possible during construction using BMPs and the FDOT’s standard protection measures outlined in the latest version of the *FDOT Standard Specifications for Road and Bridge Construction (Section 7-11.1, Preservation of Property)*, which will include the use of temporary fencing to avoid trampling, tire rutting, etc. to any protected plants located near the perimeter of proposed construction activities. In addition, to minimize the potential for adverse impacts to listed plant species, prior to construction, the FDOT will reassess the viability of relocating listed plant species to a suitable area outside of the planned limits of construction. The relocations, if determined to be viable, will be conducted prior to roadway construction. The FDOT will coordinate with the Florida Audubon Society to coordinate any relocation’s on Society property (outside of FDOT right-of-way). Prior to proposing any plant relocations within the limits of the Florida Audubon Society’s property, coordination will be conducted to discuss potential recipient sites. If required, a relocation plan depicting the source and recipient site(s) as well as details of the method(s) of relocation will be provided to the Florida Audubon Society for review and approval prior to conducting the relocation activities. In addition and at the discretion of the Florida Audubon Society, the Society may themselves opt to relocate any protected plants proposed to be impacted prior to construction. Further coordination is expected to occur with the Florida Audubon Society upon their review of the ESBA and this document.

The FDOT’s contractor will install temporary construction fencing at the limits of construction along the Florida Audubon Society property for plant protection purposes and maintain the temporary construction fencing until completion of construction at this location; no impacts will occur to vegetated areas outside of the limits of construction in accordance with the *FDOT Standard Specifications for Road and Bridge Construction (Section 7-11.1, Preservation of Property)*. Additionally, St. Augustine grass will not be planted in the FDOT right-of-way along the Florida Audubon Society property to avoid future encroachment of this landscaping grass into the adjacent natural areas. Therefore, impacts to state-listed vegetation along the study corridor as well as within the limits of the Florida Audubon Society property will be minimized to the greatest extent practicable.

Preliminary coordination efforts have been conducted with the Florida Audubon Society through the Citizen’s Advisory Committee meetings held for this project as part of the public involvement process. A representative of the Florida Audubon Society, Ms. Cynthia Guerra, was a designated member of the Citizen’s Advisory Committee meetings. Please refer to [Section 7.3.1](#) for additional information relating to the Citizen’s Advisory Committee meetings.

4.3.13 Essential Fish Habitat

Coordination with NMFS has occurred through the ETDM Screening Tool and direct conversations with NMFS staff. The ETDM comment stated that the proposed project would not impact areas that support NMFS trust resources (see [Appendix V](#) for ETDM comments). This





project is not located within, and/or will not adversely affect areas identified as Essential Fish Habitat; therefore, an Essential Fish Habitat consultation is not required.

4.3.14 Farmlands

In accordance with the FDOT *PD&E Manual*, Part 2, Chapter 28 – Farmlands (dated May 11, 2010), the FDOT has coordinated the evaluation of farmland conversion impacts for the project with the U.S. Department of Agriculture NRCS. The acreage of farmland impacted by each of the five proposed alternatives was calculated using GIS. The process included clipping the NRCS soils layer using each alternative’s footprint and estimating the acreage of the soil units designated as “Farmlands of Unique Importance” by the NRCS. The GIS results were forwarded to the NRCS to complete the *Farmland Conversion Impact Rating for Corridor Type Projects* (Form NRCS-CPA-106). The form was completed on January 9, 2012 (see [Appendix R](#)). All five alternatives intersect the same map units and the relative values of the Farmland (Part V) are very similar (see [Appendix R](#)). The only difference was the acreage distribution of Unique Farmland soils for each alternative ([Table 4-16](#)). For each build alternative, the potentially converted farmland was assigned a Land Evaluation Information Criterion Relative Value ranging from 19.7 points (Alternatives 1, 2, 4, and 5) to 19.9 points (Alternative 3) out of 100 (Part V). The FDOT determined a maximum Corridor Assessment Criteria score of 60 (out of 160) (Part VI), and thus, the Total Points score ranged from 79.7 points (Alternative 1, 2, 4, and 5) to 79.9 points (Alternative 3) out of 260. In accordance with Chapter 28-2.4.4 of the *PD&E Manual*, a total score of less than 160 is considered as minimal impacts to farmlands and no additional evaluation is necessary. Final coordination with NRCS will occur following approval of the FDOT recommended alternative and selection of the FHWA preferred alternative.

**Table 4-16 – Acreage of Unique Farmland Impact
Associated with Right-of-Way Acquisition for Road Widening**

Proposed Design Alternatives	Biscayne gravelly marl, drained	Krome very gravelly loam	Chekika very gravelly loam	TOTAL
Alternative 1	0.99	24.58	0.85	26.42
Alternative 2	1.35	26.82	0.85	29.02
Alternative 3	1.71	56.24	2.46	60.41
Alternative 4	1.58	36.72	1.20	39.50
Alternative 5	0.99	26.01	0.89	27.89

4.3.15 Construction

Construction activities for the proposed reconstruction of Krome Avenue will have short-term air, noise, vibration, water quality, traffic flow, and visual effects for those residents and travelers within the immediate vicinity of the project.

Construction activities for the proposed action may potentially have short-term air quality impacts within the immediate vicinity of the project. Construction activities may generate temporary increases in air pollutant emissions in the form of dust from earthwork and unpaved





roads and smoke from open burning. Such emissions and potential impacts will be minimized by adherence to all applicable state and local regulations and to the latest edition of the FDOT *Standard Specifications for Road and Bridge Construction*.

Noise and vibration effects will be from the heavy equipment movement and construction activities, such as pile driving and vibratory compaction of embankments. Noise control measures will include those contained in FDOT's *Standard Specifications for Road and Bridge Construction* in addition to those recommended in [Section 4.3.4.1](#) of this document. Adherence to local construction noise and/or construction vibration ordinances by the contractor will also be required where applicable.

Water quality effects resulting from erosion and sedimentation will be controlled in accordance with the FDOT's latest edition of *Standard Specifications for Road and Bridge Construction* and through the use of BMPs.

Maintenance of traffic and sequence of construction will be planned and scheduled to minimize traffic delays throughout the project. Signs will be used to provide notice of access to local businesses and other pertinent information to the traveling public. All provisions of the FDOT's latest edition of *Standard Specifications for Road and Bridge Construction* will be followed.

Construction of the roadway and bridges requires excavation of unsuitable material (muck), placement of embankments, and use of materials, such as limerock, asphaltic concrete, and portland cement concrete. Unsuitable excavated material will be disposed of in accordance with FDOT's latest edition of *Standard Specifications for Road and Bridge Construction*. Temporary erosion control features, as specified in the FDOT's latest edition of *Standard Specifications for Road and Bridge Construction*, Section 104, would consist of temporary grassing, sodding, mulching, sandbagging, slope drains, sediment basins, sediment checks, artificial coverings, turbidity barriers and berms.

4.3.16 Global Climate Change

The issue of global climate change is an important national and global concern that is being addressed in several ways by federal and state government. The transportation sector is the second largest source of total greenhouse gases in the U.S. and the greatest source of carbon dioxide emissions – the predominant greenhouse gas. In 2004, the transportation sector was responsible for approximately 31 percent of all U.S. carbon dioxide emissions. The principal anthropogenic (human-made) source of carbon emissions is the combustion of fossil fuels, which account for approximately 80 percent of anthropogenic emissions of carbon worldwide. Almost all (98 percent) of transportation-sector emissions result from the consumption of petroleum products such as gasoline, diesel fuel, and aviation fuel.

The transportation sector is a substantial contributor to greenhouse gas emissions in Florida, accounting for about 46 percent of carbon dioxide emissions statewide. The transportation sector's greenhouse gas emissions in Florida are dominated by personal vehicle travel in cars and





light trucks, which account for almost two-thirds of these emissions. Other trucks account for an addition 14 percent of carbon dioxide emissions.

Strategies are being developed and/or implemented at the federal and state levels to address transportation greenhouse gas. Governor Crist established the Action Team on Energy and Climate Change by signing Executive Order 07-128, “Florida Governor’s Action Team on Energy and Climate Change,” on July 13, 2007. A Florida Climate Change Action Plan is being developed that will include strategies to reduce emissions, including recommendations for proposed legislation for consideration by the Florida Legislature.

Key Florida strategies for reducing transportation’s contribution to greenhouse gas emissions include:

- Reducing the rate of fuel consumption by enhancing vehicle efficiency;
- Reducing congestion and delay on the transportation system;
- Reducing the carbon content of fuel, so that fewer emissions are generated for each gallon of fuel consumed;
- Reducing the growth rate in travel by managing travel demand; and
- Expanding options for travel by means other than single-occupant vehicles, and changing land use patterns.

Because climate change is a global issue, and the emissions changes due to project alternatives (including the No-Build Alternative) are not different or very small compared to global totals, the greenhouse gas emissions associated with the alternatives were not calculated. Because greenhouse gases are directly related to energy use and vehicle miles traveled, the changes in greenhouse gas emissions for build versus no-build or for build alternatives would be similar.

Climate adaptation is an important consideration in the design of projects, particularly when the project is located on an evacuation route. Specifically, the adequacy of the roadway elevation to address the potential for increased flooding should be considered. This project will comply with the current FDOT *Plans Preparation Manual* and design standards, which were recently updated to incorporate more stringent requirements in many areas of roadway design including windloading resistance and improved materials strength of permanent and frangible features such as signage, poles, and traffic signals, and measures to address adequate pavement design to accommodate potential storm event flooding.

4.3.17 Indirect Impacts

Please note that indirect impacts with respect to the “Affected Environment” are previously discussed within the respective sections of this document if applicable.





CEQ regulations define indirect effects as effects which:

... are also caused by the action and are later in time or further removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate, and related effects on air and water and other natural systems including ecosystems. 40 C.F.R. §1508.8.

As discussed herein, growth in the project area and the pattern of land use, population density and growth rate are primarily a function of the Miami-Dade CDMP. The CDMP contains a broad suite of policies directing development within the UDB, discouraging sprawl and protecting agricultural lands. Miami-Dade County has recently conducted a review of the CDMP through the EAR process and has confirmed the efficacy of the CDMP to manage and direct growth to areas within the UDB.

Summary of Growth Management Changes

The Florida Local Government Comprehensive Planning and Land Development Act has been revised since the Notice of Intent to prepare an Environmental Impact Statement was published in the Federal Register on November 1, 2005 for this project. The revised act is denominated the Community Planning Act. The changes are numerous, devolve more decision-making authority to local governments, streamline the comprehensive plan amendment process and limit state review of proposed comprehensive plan amendments to enumerated agencies with jurisdiction over important state resources and facilities. Local governments are still required to maintain comprehensive plans and conform development decisions to those plans and may maintain concurrency systems for transportation facilities. FDOT is a state review agency with jurisdiction to comment on transportation resources and facilities of state importance.

In the event a state agency provides comments on a proposed comprehensive plan amendment, that agency must specify how the amendment will make the alleged adverse impact and identify how it can be eliminated, reduced, or mitigated. If not resolved, those comments can form the basis of the agency to challenge to the amendment. The comments from state agencies are limited to specific subject matter areas within the purview of the state agency. The FDOT may comment only on issues within its jurisdiction as related to transportation resources and facilities of state importance. The SIS system is a facility of state importance.

Concurrency

Miami-Dade County conducted a required periodic review of its CDMP through the Evaluation and Appraisal Report (EAR) process and adopted its 2010 EAR in March 2011. The EAR did not identify any major issues with the adopted concurrency management process and did not propose changes to it. The County is currently working on its EAR-based CDMP amendments, which do not include changes to the concurrency system. No changes to the roadway classification of Krome Avenue were proposed in the EAR.





The CDMP continues to show Krome as 4 lanes for its entire length on the ‘Planned Year 2025 Roadway Network’ map. Krome continues to be identified as a State Principal Arterial on the ‘Roadway Functional Classification’ map for 2025. Krome remains designated as a Major Route on the ‘Designated Evacuation Routes – 2025’ map in the CDMP. On the ‘Planned Roadway Network LOS – 2025’ map Krome is shown operating variously at LOS D, E or F in the project area.

Krome Classification – A Significant Roadway

Krome Avenue is Miami-Dade County’s westernmost roadway of statewide significance. The CDMP recognizes this status and classifies this roadway as a state principal arterial roadway. The state likewise recognizes Krome Avenue’s significance. The FDOT has designated Krome Avenue a corridor in the Florida SIS that was developed to address requirements for a National Highway System implemented by Congress under the Intermodal Surface Transportation and Efficiency Act of 1991. Krome Avenue has been designated an emergency evacuation route for residents and the transient population of southern and western Miami-Dade County and provides an alternative evacuation route for Monroe County and the Florida Keys. Krome Avenue is a regional connector and the main route to transport agricultural products from southern Miami-Dade to northern Florida and other states.

The Miami-Dade MPO LRTP has been updated since the Notice of Intent to prepare an Environmental Impact Statement was published in the Federal Register on November 1, 2005 for this project. In the 2035 LRTP Krome Avenue is shown as a 2035 Cost Feasible Segment Improvement and the various Krome segments are shown as part of the 52 projects that satisfy the criteria for Regional Projects. Krome is identified as a Regional Arterial Facility.

Limited Potential for Growth Inducing Effects due to Adopted CDMP Policies

For the most part, the Krome Avenue South study corridor lies just west and outside of the UDB (the southern-most portion of the project limits lies within the UDB). The Miami-Dade County CDMP currently contains substantive policies to discourage urban sprawl and urban development outside of the UDB, particularly in areas of the county that are designated under Agriculture, Open Land, or Environmental Protection. The Krome South project corridor is surrounded by lands designated “Agriculture” (outside of the UDB) or “Estate density” (within the UDB). A copy of the current CDMP Adopted 2015 and 2025 Land Use Plan is shown in **Figure 4-8**. The analysis of the potential for growth inducing effects resulting from the four-laning of Krome Avenue is based on reliance upon the CDMP growth management policies, which redirect future development within UDB and discourage urban sprawl in lands designated under Agriculture, Open Land, or Environmental Protection. These policies recognize limited exceptions for the provision of public services and facilities in such areas when necessary to protect the public health, safety, and welfare plus serve the localized needs of the non-urban areas; the county and the Florida Department of Community Affairs (now the Department of Economic Opportunity FDEO) have determined that the widening of Krome Avenue to four lanes is consistent with these policies.



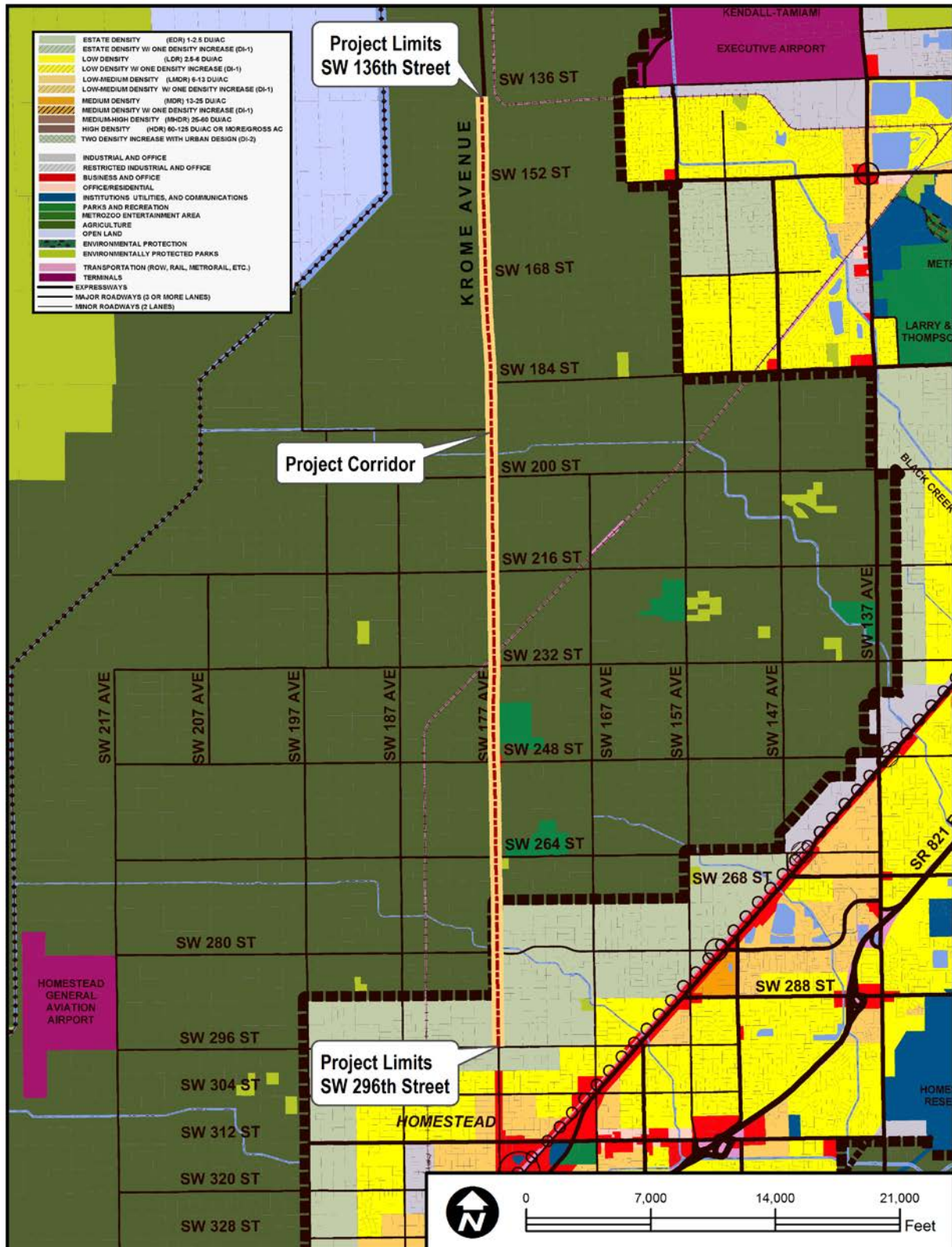


Figure 4-8 – CDMF Adopted 2015 and 2025 Land Use Plan Map





Within the CDMP there are numerous policies which reinforce that urban development should be confined within the UDB and which discourage urban sprawl. For example, Land Use Objective LU-1 provides:

The location and configuration of Miami-Dade County's urban growth through the year 2025 shall emphasize concentration and intensification of development around centers of activity, development of well designated communities containing a variety of uses, housing types and public services, renewal and rehabilitation of blighted areas, and contiguous urban expansion when warranted, rather than sprawl.

Land Use Element Policy LU-1O also provides:

Miami-Dade County shall seek to prevent discontinuous, scattered development at the urban fringe particularly in the Agriculture Areas, through its CDMP amendment process, regulatory and capital improvements programs and intergovernmental coordination activities.

Land Use Element Policy LU-1P provides:

While continuing to protect and promote agriculture as a viable economic activity in the County, Miami-Dade County shall explore and may authorize alternative land uses in the South Dade agricultural area which would be compatible with agricultural activities and associated rural residential uses, and which would promote ecotourism related to the area's agricultural and natural resource base including Everglades and Biscayne Bay National Parks.

Land Use Element Policy LU-2B provides:

Priority in the provision of services and facilities and the allocation of financial resources for services and facilities in Miami-Dade County shall be given first to serve the area within the UDB of the Land Use Plan (LUP) map. Second priority shall support the staged development of the Urban Expansion Areas (UEA). Urban services and facilities which support or encourage urban development in Agriculture and Open Land areas shall be avoided, except for those improvements necessary to protect public health and safety and which service the localized needs of these non-urban areas.

Land Use Element Policy LU-8C provides:

Through its planning, capital improvements, cooperative extension, economic development, regulatory and intergovernmental coordination activities, Miami-Dade County shall continue to promote agriculture as a viable economic use of land in Miami-Dade County.





Land Use Element Policy LU-8E provides:

Applications requesting amendments to the CDMP Land Use Plan map shall be evaluated to consider consistency with the Goals, Objectives, and Policies of all Elements, other timely issues, and in particular the extent to which the proposal, if approved, would:

- a. Satisfy a deficiency in the Plan map to accommodate projected population or economic growth of the County;*
- b. Enhance or impede provision of services at or above adopted LOS Standards;*
- c. Be compatible with abutting and nearby land uses and protect the character of established neighborhoods;*
- d. Enhance or degrade environmental or historical resources, features or systems of County significance, ...*

Land Use Element Policy U-8F provides:

The UDB should contain developable land having capacity to sustain projected countywide residential demand for a period of 10 years after adoption of the most recent Evaluation and Appraisal Report (EAR) plus a 5-year surplus (a total 15-year Countywide supply beyond the date of the EAR adoption). The estimation of this capacity shall include the capacity to develop and redevelop around transit stations at the densities recommended in policy LU-7F. The adequacy of non-residential land supplies shall be determined on the basis of land supplies in subareas of the County appropriate to the type of use, as well as the Countywide supply within the UDB. The adequacy of land supplies for neighborhood- and community-oriented business and office uses shall be determined on the basis of localized subarea geography such as Census Tracts, Minor Statistical Areas (MSAs) and combinations thereof. Tiers, Half-Tiers and combinations thereof shall be considered along with the Countywide supply when evaluating the adequacy of land supplies for regional commercial and industrial activities.

Land Use Element Policy LU-8G provides:

When considering land areas to add to the UDB, after demonstrating that a countywide need exists,

- i. The following areas shall not be considered:*
 - a. The Northwest Wellfield Protection Area located west of the Turnpike Extension between Okeechobee Road and NW 25 Street, and the West Wellfield Protection Area west of SW 157 Avenue between SW 8 Street and SW 42 Street;*
 - b. Water Conservation Areas, Biscayne Aquifer Recharge Areas, and Everglades Buffer Areas designated by the South Florida Water Management District;*
 - c. The Redland area south of Eureka Drive; and*





- ii. *The following areas shall be avoided:*
 - a. *Future Wetlands delineated in the Conservation and Land Use Element;*
 - b. *Land designated Agriculture on the Land Use Plan map;*
 - c. *Category 1 hurricane evacuation areas east of the Atlantic Coastal Ridge; and*
- iii. *The following areas shall be given priority for inclusion, subject to conformance with Policy 8G and the foregoing provision of this policy:*
 - a. *Land within Planning Analysis Tiers having the earliest projected supply depletion year;*
 - b. *Land contiguous to the UDB;*
 - c. *Locations within one mile of a planned urban center or extraordinary transit service; and*
 - d. *Locations having projected surplus service capacity where necessary facilities and services can be readily extended.”*

...

The 2010 EAR contains an extensive discussion of population and land use consumption trends in the County. It identifies and maps all land use map amendments since the 2003 EAR. It maps projected population changes in the County. It contains a thorough discussion of the efficacy of the UDB and the related growth management policies intended to direct and contain growth within the UDB. Assessing the history of proposed amendments to the UDB since the last EAR, the County concludes that “it is evident that the County has been successful in directing development inside the UDB consistent with its participation through its comprehensive land use planning.” The 2010 EAR does not recommend any revisions to weaken the land use policies enumerated above or to weaken the UDB.

Urban Development Boundary

Miami-Dade County is one of the only counties in the state of Florida to have an “urban development boundary.” The purpose and function of the UDB is described in the CDMF Future Land Use Element:

The Urban Development Boundary (UDB) is included on the LUP map to distinguish the area where urban development may occur through the year 2015 from areas where it should not occur. Development orders permitting urban development will generally be approved within the UDB at some time through the year 2015 provided that level-of-service standards for necessary public facilities will be met.

...

The CDMF seeks to facilitate the necessary service improvements within the UDB to accommodate the land uses indicated on the LUP map within the year 2015 time frame. Accordingly, public expenditures for urban service and infrastructure





improvements shall be focused on the area within the UDB, and urban infrastructure is discouraged outside the UDB. In particular, the construction of new roads, or the extension, widening and paving of existing arterial or collector roadways to serve areas outside the UDB at public expense will be permitted only if such roadways are shown on the LUP map and in the Transportation Element. CDMP, Land Use Element, p. I-57.

For the most part, the Krome Avenue South study corridor lies just west and outside of the UDB (the southern-most end of the project limits lies within the UDB). See [Figure 4-9](#) showing the location of the study corridor with respect to the UDB. See [Figure 4-8](#), showing the location of the study corridor on the adopted 2015 and 2025 Land Use Plan.

In order to discourage urban sprawl and protect lands designated under the Agriculture, Open, or Environmental categories from urbanized development, Miami-Dade County implemented the UDB before the Florida legislature adopted laws requiring comprehensive growth management plans in 1985. Therefore, the UDB predates the CDMP, which was adopted in 1988. Neither Chapter 163 Florida Statutes nor former Rule 9J-5 requires an UDB; therefore, Miami-Dade County is making use of a technique to discourage urban sprawl which exceeds the mandates of the state planning statute. The introduction to the CDMP Land Use Element notes:

The Land Use Element of the CDMP for the years 2015 and 2025 constitutes the fifth major update of the CDMP Land Use Element. However, the pattern of land use and urban growth promoted in the original 1975 edition of the CDMP remains essentially unchanged.

The role of the UDB in urban services delivery is also recognized:

Critical in achieving the desired pattern of development is the adherence to the 2015 UDB and 2025 Urban Expansion Area (UEA) Boundary. Given the fundamental influences of infrastructure and service availability on land markets and development activities, the CDMP has since its inception provided that the UDB serve as an envelope within which the public expenditures for urban infrastructure will be confined. In this regard the UDB serves as an urban services boundary in addition to a land use boundary.

Miami-Dade County has rarely expanded the UDB in areas not designated as Urban Expansion Areas. In the last ten years, the UDB has only been expanded once outside of the Urban Expansion Areas. That amendment to the Land Use Plan for the Beacon Lakes Project approved an industrial use within a USEPA designated Brownfield where rock mining and cement manufacturing had already taken place. The USEPA Brownfield designation was created to promote the redevelopment of previously contaminated lands.

As discussed above, the 2010 EAR, after discussing the dynamics of growth, land use consumption and population in the County, identifies no major deficiencies with and proposes no major changes to the UDB. The EAR directs growth management strategies to more effective,





efficient and focused efforts within the UDB, rather than suggesting ways to expand it. The only actual expansion of the UDB suggested in the EAR is for an area remote from the project in an area already surrounded by urban development.

Of note to the analysis of potential growth inducing effects from the four laning of Krome Avenue is Policy 4C of the Traffic Circulation Subelement which requires avoidance of improvements which encourage development in certain areas. With regard to development in Agriculture and Open Land areas, transportation improvements which encourage development are to be avoided but avoidance is subject to an exception for public safety and localized needs of non-urbanized areas. Policy TC-4C of the Traffic Circulation Subelement provides:

Dade County's priority in the construction maintenance, and reconstruction of roadways, and the allocation of financial resources, shall be given first to serve the area within the UDB of the Land Use Plan map. Second priority in transportation allocation shall support the staged development of the urbanizing portions of the County within the Urban Expansion Areas. Transportation improvements which encourage development in Agriculture and Open Land areas shall be avoided, except for those improvements which are necessary for public safety and which serve the localized needs of these non-urban areas. Areas designated Environmental Protection shall be particularly avoided.



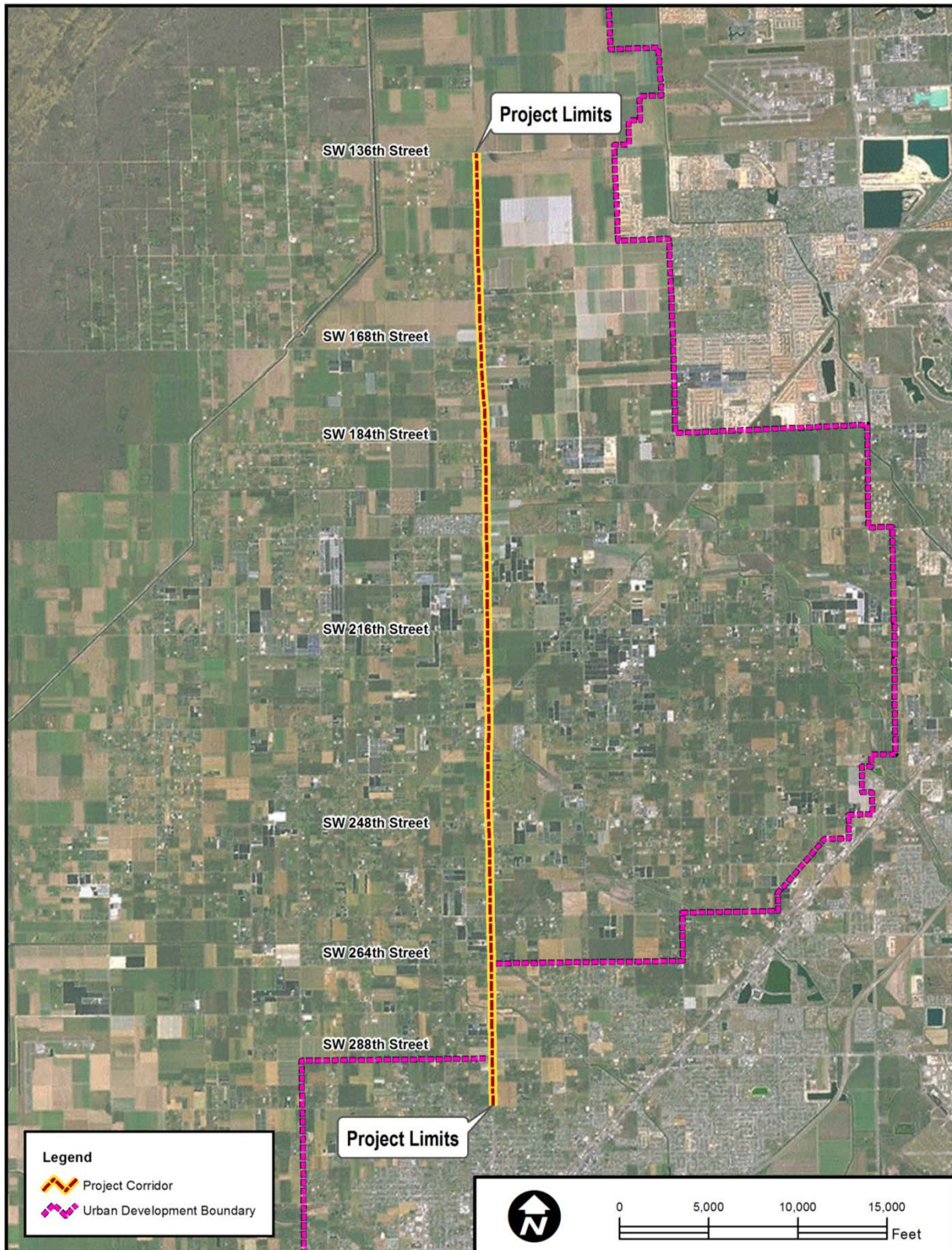


Figure 4-9 – Urban Development Boundary Map





Limitations on Development within the CDMP

The CDMP contains policies specifically adopted to discourage urban sprawl around Krome Avenue. Land Use Element Policy LU-3F provides:

Any zoning action or amendment to the CDMP that would approve any use other than direct agricultural production and permitted residential uses of property, in an area designated as Agriculture, whether as a primary use or as an accessory or subordinated use to an agricultural use, or action that would liberalize standards or allowances governing such other uses on land that is a) outside the Urban Development Boundary (UDB), and b) within one mile of the right-of-way line of any portions of Krome Avenue designated in this Plan for improvement to 4-lanes, shall require an affirmative vote of not less than five members of the affected Community Zoning Appeals Board and two-thirds of the total membership of the Board of County Commissioners then in office, where such Community Zoning Appeals Board or Board of County Commissioners issues a decision. The term “direct agricultural production” includes crops, livestock, nurseries, groves, packing houses, and barns but not uses such as houses of worship, schools, sale of produce and other items, and outdoor storage of vehicles. This policy is not intended to permit any use not otherwise permitted by the CDMP. Any modification to this section to allow additional uses within the one mile distance from Krome Avenue shall require an affirmative vote of not less than two-thirds of the Board of County Commissioners then in office.

Land Use Element Policy LU-3G provides:

Any zoning action, or amendment to the Land Use plan map that would approve a use of property other than limestone quarrying, seasonal agriculture or permitted residential use in an area designated as Open Land on land that is, a) outside the Urban Development Boundary (UDB), and b) within one mile of the right-of-way line of any portions of Krome Avenue designated in this Plan for improvement to 4-lanes, shall require an affirmative vote of not less than five members of the affected Community Zoning Appeals Board and two-thirds of the total membership of the Board of County Commissioners then in office, where such Community Zoning Appeals Board or Board of County Commissioners issues a decision. This policy is not intended to permit any use not otherwise permitted by the CDMP. Any modification to this section to allow additional uses within the one mile distance from Krome Avenue shall require an affirmative vote of not less than two-thirds of the Board of County Commissioners then in office.

Land Use Element Policy LU-3H provides:

Any zoning action, or amendment to the Land Use plan map that would approve a use of property other than seasonal agricultural use in the Dade-Broward Levee Basin or permitted residential use in an area designated as Environmental





Protection, on land that is, a) outside the Urban Development Boundary (UDB), and b) within one mile of the right-of-way line of any portions of Krome Avenue designated in this Plan for improvement to 4-lanes, shall require an affirmative vote of not less than five members of the affected Community Zoning Appeals Board and two-thirds of the total membership of the Board of County Commissioners then in office, where such Community Zoning Appeals Board or Board of County Commissioners issues a decision. This policy is not intended to permit any use not otherwise permitted by the CDMP. Any modification to this section to allow additional uses within the one mile distance from Krome Avenue shall require an affirmative vote of not less than two-thirds of the Board of County Commissioners then in office.

Under the analysis of the potential for growth-inducing effects from four laning Krome Avenue, it is important to emphasize that any future attempts to change land use in the vicinity of Krome Avenue will, if anything, be more difficult because of the supermajority land use policies contained in Land Use Policies 3F, 3G, and 3H. These supermajority policies work in tandem with the other established policies to discourage urban sprawl and urban development outside of the UDB and to provide standards for land use changes within one mile of Krome Avenue. The supermajority policies add an additional procedural requirement, making it more difficult to change the planning and zoning designations on a property within one mile of Krome Avenue.

CDMP Traffic Circulation Subelement Policy TC-4E provides:

Notwithstanding the designation of Krome Avenue as a Major Roadway on the CDMP Land Use Plan Map or as a four-lane roadway in the Traffic Circulation Subelement, no construction associated with the four-laning, or other capacity improvement, of Krome Avenue outside the UDB shall occur until FDOT has prepared, and the Board of County Commissioners has adopted, a detailed binding access control plan for the Krome Avenue corridor. This plan should emphasize access to properties fronting Krome Avenue primarily through alternative street locations.

In addition, Traffic Circulation Policy 4E, which requires an access control plan, will have a deterrent effect on urban development along whatever part of Krome Avenue is widened to four lanes. An access control plan that “emphasize[s] access to properties fronting Krome Avenue primarily through alternative street locations” means that most of the traffic on Krome Avenue will have a limited ability to enter or leave the highway to shop at business uses or to frequent any of the other kinds of development that could spring up along the road. FDOT has prepared and submitted the referenced access control plan to Miami-Dade County in September, 2012. The Krome corridor is an Access Management Class 2 roadway. The access control plan does not propose to change that designation. As an element of the SIS, access to abutting land along the corridor is subordinate to the function of high speed, high volume traffic movement, and such access must be regulated. The policy will help retain the agricultural character of Krome Avenue.





Therefore, under established CDMP policies, adding two additional lanes to Krome Avenue does not encourage urban sprawl. Furthermore, there are adequate provisions under Florida law to properly enforce the CDMP policies. Any development order (i.e., any decision of the County to grant or deny permission to develop land, per Section 163.3164, Florida Statute) that materially alters the use or density or intensity of development of that land must be consistent with the CDMP, or it is subject to challenge. If a proposed development might create the potential for urban sprawl that might threaten agriculture or pose a danger to environmentally protected lands, amendments would have to be made to change the CDMP as it exists today before the County could legally approve such a development. If the County were to approve any such amendments, the approval would be subject to further review by the FDEO and potential challenge. As demonstrated by the 2010 EAR, however, the land use policies have been applied rigorously to contain development within the UDB, and the EAR proposes to continue those policies.

In November 2012, voters in Miami-Dade County adopted by more than 2 to 1 (68%) a charter amendment requiring an extraordinary vote (2/3) of the entire County Commission to enlarge the Urban Development Boundary. This requirement will make it more difficult for the UDB to be enlarged into the Krome Avenue corridor area.





4.3.18 Cumulative Impacts

Cumulative impacts are defined in the CEQ implementing regulations of NEPA (40 CFR 1508.7) as:

... the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Based on the impact analyses in Chapter 4 of this document, no adverse direct or indirect impacts will occur to wetlands, water quality, floodplains, air quality, visual/aesthetic resources, or bicycle and pedestrian features; therefore, cumulative impacts for these resource topics were not analyzed.

In determining the area of influence within which other projects may have a cumulative effect when combined with the Krome Avenue project, the FDOT referenced the FHWA's position paper titled *Secondary and Cumulative Impact Assessment in the Highway Project Development Process* (1992), which states: "... an acceptable general guideline for determining the area of influence is the geographic extent to which a project will affect traffic levels." This area of influence is appropriate for the Krome Avenue project for all of the social and economic impact topics (i.e., population and community growth characteristics, economic conditions, community services, community cohesion, land use, and utilities and railroads). However, this area of influence is not appropriate for use in analyzing the cumulative effects of all impact topics.

The area of influence for some of the natural resource impact topics is better defined by the guidelines established by the permitting agencies responsible for these resources. The SFWMD and USACE are responsible for permitting wetland and surface water impacts in the area of the Krome Avenue project. The Basis of Review for Environmental Resource Permit Applications within the SFWMD (2010) states that cumulative impacts for wetlands and surface waters should be evaluated "within the same drainage basin as the regulated activity for which a permit is sought." Therefore, for the purposes of this study, the area of influence for analyzing cumulative impacts to those impact topics related to wetlands and surface waters (i.e., wildlife and habitat) is defined as within the same drainage basin(s) as the Krome Avenue project.

The Krome Avenue project crosses three drainage basins – C-1, C-102, and C-103 from north to south (as defined by the SFWMD) - distributed as follows (see [Figure 4-10](#)):

- C-1 – 3.05 Miles
- C-102 – 2.03 Miles
- C-103 – 5.04 Miles



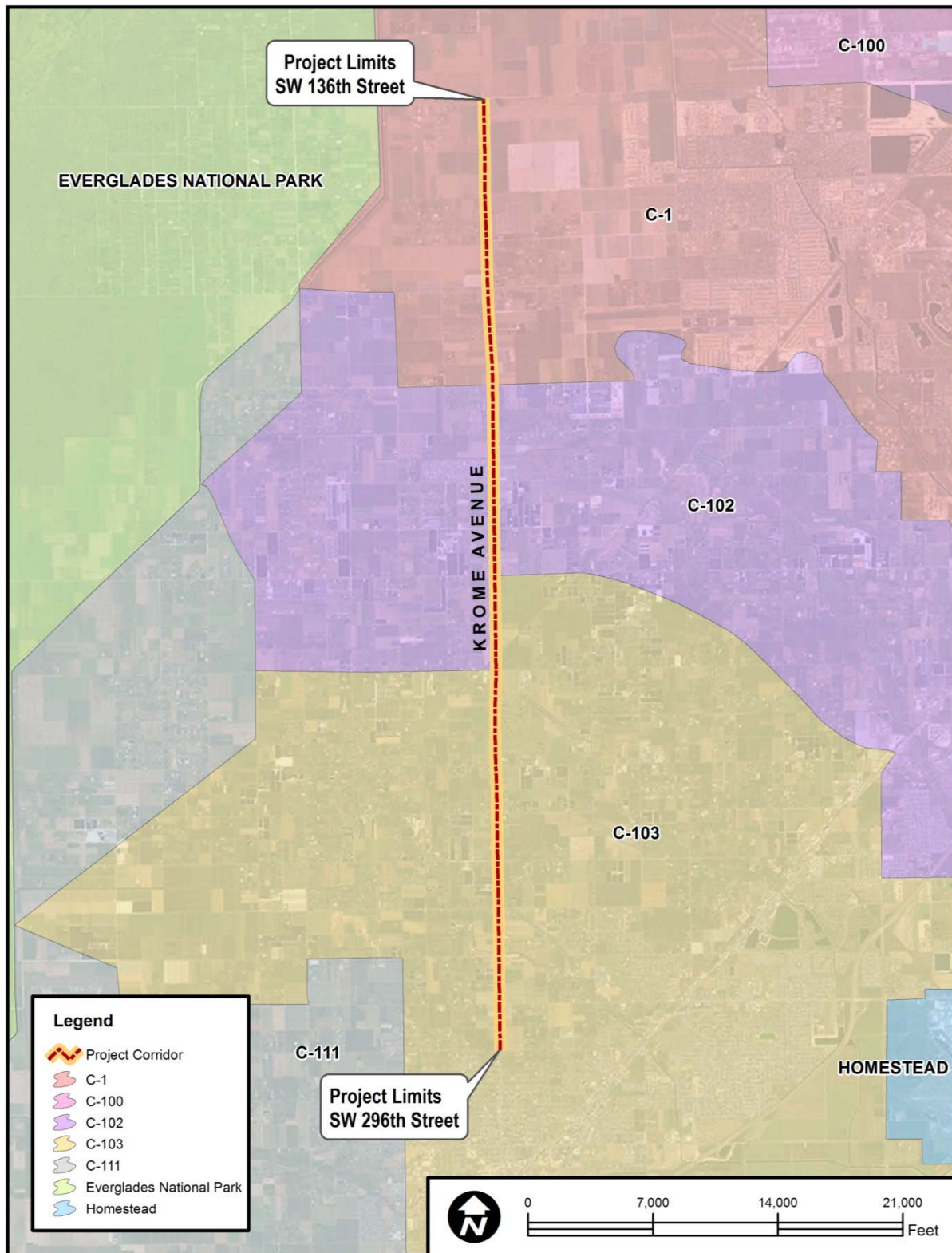


Figure 4-10 – SFWMD Drainage Basins within the Krome Avenue Study Area





Other impact topics such as cultural and historical resources (archeological and historic resources, Section 4(f) resources, and recreational and parklands) and some natural and physical resources (noise, contamination, and farmlands) have a narrower area of influence for cumulative impacts, which is restricted to the study corridor and directly adjacent/adjoining lands. **Table 4-17** below shows the impact topics which have the potential to be affected from the Krome Avenue project and the corresponding area of influence for each impact topic.

Table 4-17 – Krome Avenue (South) Impact Topics and Associated Areas of Influence

Impact Topic	Area of Influence
Social and Economic	
Population and Community Growth Characteristics	Entire Krome Avenue Corridor from US-1 to Okeechobee Road and Immediate Connecting Roadway Corridors
Economic Conditions	
Community Services	
Community Cohesion	
Land Use	Krome Avenue (South)* Study Corridor and Directly Adjacent/Adjoining Lands
Utilities and Railroads	Krome Avenue (South)* Study Corridor and Directly Adjacent/Adjoining Lands
Cultural and Historical Resources	
Archeological and Historic Resources	Krome Avenue (South)* Study Corridor and Directly Adjacent/Adjoining Lands
Section 4(f) Resources	
Recreational and Parklands	
Natural and Physical Resources	
Noise	Krome Avenue (South)* Study Corridor and Directly Adjacent/Adjoining Lands
Contamination	Krome Avenue (South)* Study Corridor and Directly Adjacent/Adjoining Lands
Wildlife and Habitat	SFWMD Drainage Basins (C-1, C-102, C-103)
Farmlands	Krome Avenue (South)* Study Corridor and Directly Adjacent/Adjoining Lands

* Krome Avenue (South) is defined as the existing Krome Avenue roadway corridor from SW 296th Street to SW 136th Street in Miami-Dade County, Florida.

Figure 4-11 shows a selection of the past, present, and reasonably foreseeable future actions which may have cumulative impacts on the areas of influence of the Krome Avenue (South) project. These projects are also discussed in **Table 4-18**.



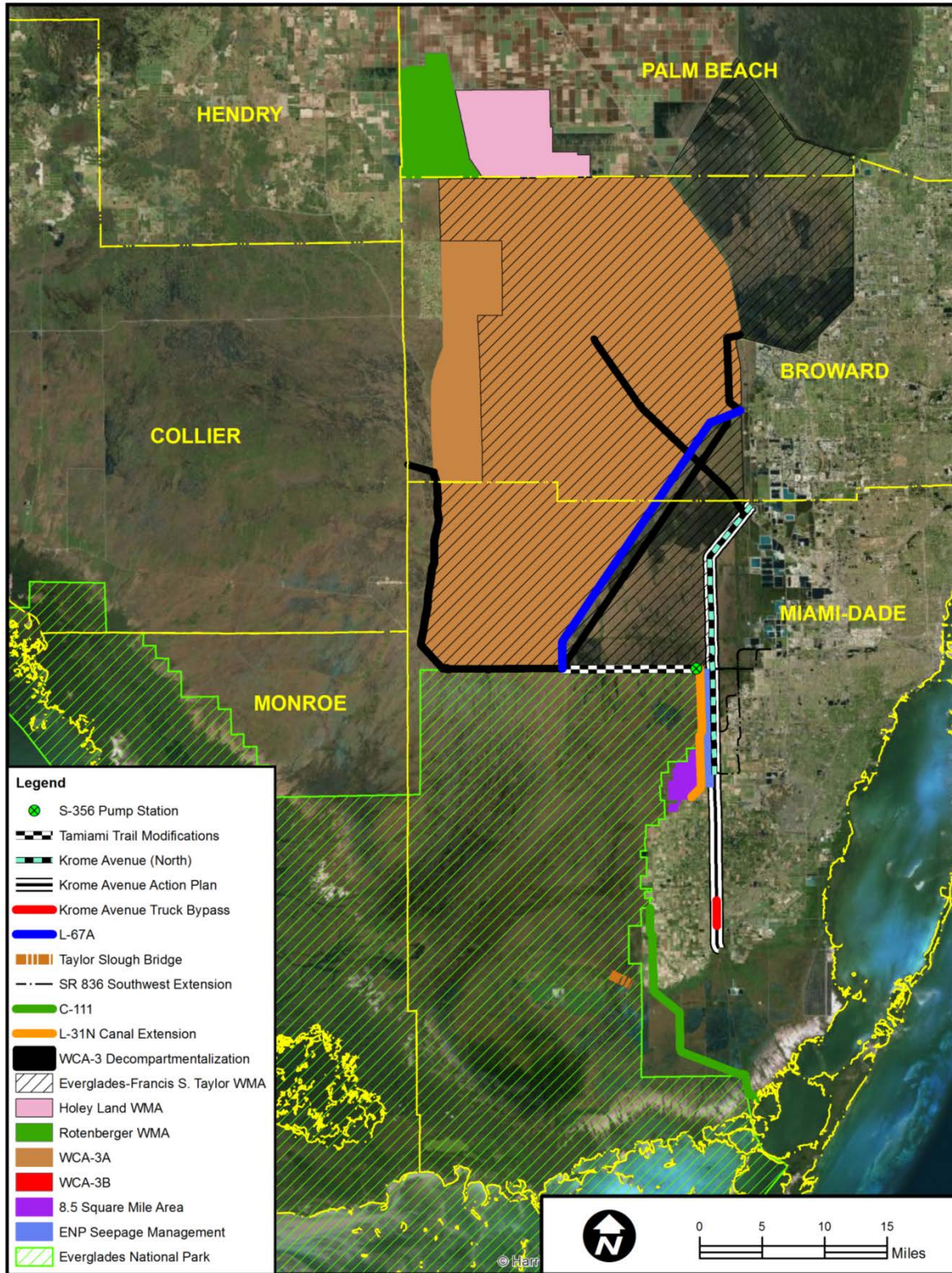


Figure 4-11 – Past, Present, and Reasonably Foreseeable Future Actions with Cumulative Impacts on the Areas of Influence of the Krome Avenue Project





Table 4-18 – Past, Present, and Reasonably Foreseeable Future Actions with Cumulative Impacts on the Areas of Influence of the Krome Avenue Project

Plan/Project	Description
Krome Avenue Plans/Projects	
Krome Avenue Action Plan	The Krome Avenue Action Plan was completed in 1999 with the goal of developing interim improvements to maintain safety and improve conditions and existing levels of service along the Krome Avenue corridor between SR 25/US 27/Okeechobee Road and SR 5/US 1/South Dixie Highway. The Krome Avenue Action Plan was developed in an attempt to integrate land use and transportation decisions to provide safety and operational benefits to the Krome Avenue corridor while balancing the need to sustain agriculture, preserve the rural character of the corridor, and protect environmental resources. The main focus of the Krome Avenue Action Plan was to develop a plan of ultimate improvements required to address future mobility needs. Improvement alternatives considered as part of the Krome Avenue Action Plan included safety enhancements, intersection and signal modifications, access management, shoulder enhancements, pavement markings, passing zones, frontage roads, emergency phones, signage, a truck bypass or alternate route for the segment of Krome Avenue between Lucy Street and Avocado Drive, parking modifications, pedestrian/bicycle facilities, and landscape aesthetic enhancements.
Krome Avenue (North)	Reconstruction of 22.8 miles of Krome Avenue, from SW 136 th Street/Howard Drive to SR 25/US 27/Okeechobee Road, from a two-lane roadway to a four-lane roadway, with four 12-foot travel lanes, 12-foot outside shoulders (5-foot paved), a 40-foot depressed sod median, and an overall typical section width of 176 feet to 181 feet, with the exception of the northern 0.75-mile, where it is 197 feet (to incorporate a bike trail)
Krome Avenue Truck Bypass	The purpose of the project is to provide a truck by-pass facility to redirect truck traffic along Krome Avenue from the Homestead Historic Downtown District, to enhance safety, truck traffic movement and address existing problems related to traffic congestion.
Krome Avenue Canal	A new Krome Avenue canal is planned as part of the SFWMD Bird Drive component of the Comprehensive Everglades Restoration Plan. This project could consist of construction of a new waterway from the L-29 Canal to a new pump station near S-338 and relocation of S-338 to the east side of Krome Avenue. Additionally, improvements would be made from C-1W to the L-31N intercept.
Proposed Borrow Pit	A rock mining company is proposing excavation of a new rock mine that would create a 172-acre lake excavation pit on a 400-acre property owned by a developer in the vicinity of Krome Avenue and SW 90 th Street (north of the northern terminus of this project). Miami-Dade County approved the mine in October 2011. However, the permit is currently under legal review contending that the County violated the CDMP, which has set aside that land exclusively for agriculture or other compatible uses.
Adjacent Roadway Plans/Projects	
SR 836 Southwest Extension	A PD&E study has recently begun for a new 15 mile south/north and west/east transportation corridor from the terminus of SR 836 to Southwest Kendall to improve connectivity and enhance mobility needs.





Table 4-18 – Past, Present, and Reasonably Foreseeable Future Actions with Cumulative Impacts on the Areas of Influence of the Krome Avenue Project

Plan/Project	Description
Restoration and Water Management Projects	
Comprehensive Everglades Restoration Plan	<p>This plan is a framework and guide to restore, protect, and preserve the water resources of central and southern Florida. The plan was approved in the Water Resources Development Act (2000), and it is a component of the world's largest ecosystem restoration effort, encompassing 16 counties and an 18,000-square-mile area. The comprehensive plan includes more than 60 elements designed to capture, store, and redistribute fresh water. Implementation of the comprehensive plan is expected take more than 30 years to complete and would improve the quality, quantity, timing, and distribution of water flows. Some of the major elements of the Comprehensive Everglades Restoration Plan include:</p> <ul style="list-style-type: none"> • WCA-3 Decompartmentalization and Hydropattern Restoration feature • ENP Seepage Management • C-111 Spreader Canal • River of Grass Initiative • Central Everglades Planning Project
Modified Water Deliveries to Everglades National Park	<p>Originally initiated by Congress as part of the 1989 Everglades Expansion and Protection Act, this project aims to improve water deliveries into Everglades National Park. Since the implementation of the Central & Southern Florida Project, artificial distributions of water have left some areas of the park unnaturally wet, while others remain too dry. This project endeavors to restore a more natural flow of water to Northeast Shark Slough, thereby alleviating western Shark Slough from unusually high water levels. Because the <i>Modified Water Deliveries</i> project is expected to increase water levels around some developed areas, full implementation likely remains years away. Project partners must carefully consider the full effects of their actions for endangered species, public roadways, and private residents. It is expected, however, that once such issues have been resolved, the plan will yield new life for the Everglades through enhanced water flows. There are five major components of the Modified Water Delivers to Everglades National Park Project:</p> <ul style="list-style-type: none"> • Tamiami Trail Modifications • L-67A Conveyance Features • 8.5 Square Mile Area Protection Features • S-356 Pump Station • Taylor Slough Bridge
Experimental Program of Water Deliveries to Everglades National Park	<p>Public Law 98-181, enacted in November 1983, authorized the USACE, with the concurrence of the SFWMD and the NPS to implement the Experimental Water Deliveries Program. Congress authorized the USACE, in concurrence with the SFWMD and the NPS, to experiment with the delivery of water to Everglades National Park in order to provide ecosystem benefits and reverse the ecological decline in the park. Furthermore, the law authorized the USACE to construct the necessary measures to provide flood protection for homes in order to meet the goals of the program. The law also authorized the USACE to acquire agricultural lands threatening the realization of these objectives. The program was re-authorized every two years until 1989 when permanent authority was issued pending the completion of permanent structural modifications approved under the Everglades Expansion Act of 1989. This legislation provided the USACE with the authority to use the Experimental Water Deliveries Program as an iterative field testing program for developing optimum water delivery plans for Everglades National Park.</p>





Table 4-18 – Past, Present, and Reasonably Foreseeable Future Actions with Cumulative Impacts on the Areas of Influence of the Krome Avenue Project

Plan/Project	Description
Everglades Restoration Transition Plan	The purpose of this plan is to define water management operating criteria for Central and Southern Florida Project features and the constructed features of the Modified Water Deliveries and Canal-111 projects until a Combined Operational Plan is implemented. The plan objectives include improving conditions in Water Conservation Area 3A for the endangered Everglade snail kite, wood stork and wading bird species while maintaining protection for the endangered Cape Sable seaside sparrow and Congressionally authorized purposes of the Central and Southern Florida Project. This plan incorporates more flexible operating criteria to better manage Water Conservation Area 3A for the benefit of multiple species and represents a positive step towards balancing the competing needs of a complex system.
Conceptual Management Plan for the Everglades Complex of WMAs	The Everglades Complex is part of the Kissimmee-Okeechobee-Everglades basin and lies within three counties — southwestern Palm Beach, western Broward, and northwestern Miami-Dade. It includes three management areas — Holey Land, Rotenberger, and Everglades-Francis S. Taylor. Through a cooperative management agreement with the SFWMD, the FWC has management authority over Everglades Complex WMA lands (mainly lands in Water Conservation Areas 2 and 3) for game and fresh water fish preservation, protection, propagation, and recreational use. The plan lists 28 state and federally listed and endangered or threatened species and their habitat.
Combined Operational Plan (COP)	The Combined Operational Plan (COP) is an integrated operational plan for Water Conservation Area 3 (WCA-3), Everglades National Park (ENP) and the South Dade Conveyance System (SDCS), that includes the completed modifications of the Central and Southern Florida (C&SF) Project as described by the Modified Waters Deliveries to Everglades National Park and the Canal-111 South Dade (C-111SD) projects. The purpose of COP is to define water management operations for the completed MWD and C-111SD projects that are consistent with their respective project purposes as defined by their authorizing legislation and further refined by their respective general design memorandum (GDM) and general reevaluation report (GRR). This integrated operational plan will complete the MWD project.
L-31N Canal Expansion	Improvement/reconstruction of the L-31N Canal from G-211 south to the S-331 pump station and improvement/ reconstruction of the L-31N Canal north of G-211 to a new pump station/gated structure at the C-4 intercept.
Western Wellfield Expansion	Recommendations are outlined in the Comprehensive Everglades Restoration Plan (USACE and SFWMD, 1999) to further shift large wellfield withdrawals from the coastal areas to western facilities. The relocation of existing or construction of new municipal well fields in western urban areas, however, is tempered by concern that they may adversely affect Everglades and water-conservation area ecosystems.





Table 4-18 – Past, Present, and Reasonably Foreseeable Future Actions with Cumulative Impacts on the Areas of Influence of the Krome Avenue Project

Plan/Project	Description
Protected Species Plans/Projects	
South Florida Multi-Species Recovery Plan	This plan was written to recover multiple species by restoring ecological communities throughout the South Florida ecosystem (26,002 square miles). There are more than 600 species considered either rare or imperiled in South Florida, 68 of which are federally listed as threatened or endangered. A number of limiting factors for habitat-limited species are outlined, including habitat loss, fragmentation, and degradation as a result of urbanization, agriculture or other land-use conversions, wetland drainage and alteration of hydrological patterns, invasion of nonnative species, fire suppression, soil subsidence, degradation of water quality, and increased levels of contaminants. Recovery objectives are identified at the species level, while recovery criteria are identified at the species and community level. Recovery actions have been developed to provide consistency between each of the 68 species, and habitat level recovery actions have been developed to facilitate the integration of individual species needs at the community level. The plan does not replace existing approved species recovery plans, but rather outlines South Florida's contribution to range-wide recovery.
Recreation Plans/Projects	
Comprehensive Everglades Restoration Plan Master Recreation Plan	The <i>Comprehensive Everglades Restoration Plan Master Recreation Plan</i> takes "a system-wide approach to identify, evaluate, and address the impacts of Comprehensive Everglades Restoration Plan implementation on existing recreational use within the South Florida Ecosystem and identify and evaluate potential new recreation, public use and public educational opportunities. A particular focus will be on the identification of additional public use and recreational opportunities to compensate for public use facilities that may be lost."
State Comprehensive Outdoor Recreation Plan	This plan assesses recreational supply, demand, and needs for 11 regions in the state. The South Florida region (Region 11) is composed of Broward, Miami-Dade, and Monroe counties. The plan identifies goals for recreational opportunities and facilities, including hiking, bicycling, horseback riding, camping, fishing, and ORV use.
Development Plans/Projects	
Kendall Town Center DRI	The Kendall Town Center DRI has been approved. The Kendall Town Center is part of a 158 acre site located approximately 18 miles southwest of downtown Miami. A portion of the land was sold to Baptist Hospital for the development of a 282,000 square foot hospital and 62,600 square foot medical office building, which opened in April 2011. Other parcels were sold and are expected to include the development of a 120 room hotel with ancillary office and retail and a senior housing component. The remaining 70-acre parcel is entitled for 621,300 square feet of retail, 60,000 square feet of office and 50,000 square feet of community center. All current infrastructure requirements, including a pump station, transit center and private drive have been funded and are nearly complete.
Parkland DRI	The only DRI under review by the FDEO and Miami-Dade County is the Parkland DRI. In order for the Parkland DRI to be approved, the UDB would have to be moved to encompass the proposed development.

The potential cumulative impacts from the combined actions of this project and other past, present, and reasonably foreseeable future actions in the areas of influence defined above are discussed below. The direct impacts from this project are discussed in detail in the applicable sections of chapter 4 of this document.





Social and Economic

Social and economic impacts from this project are discussed in [Section 4.1](#). FDOT roadway projects would have all beneficial economic effects by bringing funding into the region for these projects and generating jobs from construction activities. Projects such as these also have the potential to have an adverse impact on characteristics such as community services (from right-of-way acquisition impacts) and community cohesion (by dividing communities). However, since the Krome Avenue projects occur along an existing roadway corridor, it is not anticipated that the adjacent communities will suffer any community cohesion impacts. Additionally, since the right-of-way acquisition needs for this project from community service facilities are limited to undeveloped areas, the impacts are expected to be very minor and the function of the associated services will not be impacted. These and future FDOT roadway projects could also require relocations of residences, business, and personal property. To minimize these potential impacts, the FDOT would carry out a right-of-way and relocation program for all of its projects. Ultimately, the roadway improvements associated with the Krome Avenue projects and other FDOT roadway projects in the area of influence would benefit the surrounding communities by creating safer roadways for motorists.

Regional restoration and water management projects would have a beneficial effect on both social and economic characteristics of the region by bringing funding into the region for these projects, generating jobs, and ultimately creating a more pleasing natural environment in the South Florida region. Plans and projects focused on outdoor recreation in the South Florida region will both provide enhanced opportunities for activities such as hiking, bicycling, horseback riding, camping, fishing, and recreational off-road vehicle use would have beneficial effects to the surrounding communities, including communities along the study corridor. Development projects could disrupt community cohesion along this fairly rural corridor. Community services could experience increased demand and pressure from the potential increase in population.

Collectively, the past, present, and reasonably foreseeable future actions would have a beneficial cumulative impact on the social and economic characteristics of the area of influence. This project would contribute an adverse increment to the cumulative impact; however, the FDOT will continue to conduct public involvement activities for this project and other FDOT roadway projects to minimize all negative impacts to the maximum extent practicable.

Land Use

Land use changes associated with this project are discussed in [Sections 4.1.5](#) and [4.3.17](#). All of the projects within the area have the potential to influence land use changes. However, such changes would have to be coordinated with the appropriate federal, state, and local agencies, including the FDEO, thus minimizing cumulative impacts. As discussed in the referenced sections, Miami-Dade County has an effective suite of land use control policies in its CDMF intended to limit land use changes in the project environs. Collectively, the past, present, and reasonably foreseeable future actions could have both beneficial and adverse effects on the area of influence; however, this project has been determined to be consistent with the four-lane





facility identified in the Transportation Element of the Miami-Dade County Comprehensive Plan.

Utilities and Railroads

Impacts to utilities and railroads resulting from this project are discussed in [Section 4.1.6](#). Other projects in the vicinity of this project would have the potential to require relocation of existing utilities or railroad crossings along the corridors. The agencies responsible for these projects would likely conduct necessary coordination early in the project development process, which would minimize unacceptable adverse impacts. Collectively, the past, present, and reasonably foreseeable future actions could have an adverse cumulative impact on utilities and railroads in the area of influence, causing potential relocations of utilities and railroad crossings; however, the FDOT will continue to coordinate with utilities and railroad representatives during the design phase of the project to minimize impacts to the maximum extent practicable.

Archeological and Historic Resources

Historic resource impacts from this project are discussed in [Section 4.2.1.2](#). No archeological resource impacts are anticipated from this project. Due to the restricted area of influence for the NRHP-eligible resources evaluated for this project, none of the other projects listed above would be expected to have an effect on these resources. Therefore, there would be no cumulative impacts to historic resources within the area of influence from the combination of the proposed improvements from this project and other past, present, and reasonably foreseeable future actions.

Section 4(f) Resources

Section 4(f) resource impacts from this project are discussed in [Section 4.2.2](#). Due to the restricted area of influence for these resources, none of the other projects listed above would be expected to have an effect on the Section 4(f) resources evaluated for this project. Therefore, there would be no cumulative impacts to Section 4(f) resources within the area of influence from the combination of the proposed improvements from this project and other past, present, and reasonably foreseeable future actions.

Recreational and Parklands

Impacts to recreational and parklands from this project are discussed in [Section 4.2.3](#). Other FDOT roadway projects could potentially have adverse impacts on recreational and parklands within the vicinity of the study area. However, impacts from these projects would be properly analyzed and minimized to the maximum extent practicable. Additionally, due to the restricted area of influence for the specific resources discussed above, none of the other projects listed above would be expected to have any impacts on these specific resources. The Comprehensive Everglades Restoration Plan Master Recreation Plan and State Comprehensive Outdoor Recreation Plan, focused on outdoor recreation in the South Florida region, would both contribute positive effects to recreational and parklands regionally, potentially including areas





within the study corridor. Collectively, the past present and reasonably foreseeable future actions could have both beneficial and adverse effects on recreational and parklands within the area of influence. This project would contribute a minor to moderate negative increment to the cumulative effect, depending upon the alternative chosen. However, due to the restricted area of influence for the specific resources discussed above, none of the other projects listed above would be expected to have any impacts on these specific resources.

Noise

Noise impacts for this project are discussed in [Section 4.3.4](#). None of the noise barriers evaluated for this study are recommended for further consideration and there are no apparent solutions available to mitigate the noise impacts at the impacted locations. The traffic noise impacts to these noise sensitive sites are considered to be an unavoidable consequence of the project. Other FDOT roadway projects in the vicinity have the potential to both increase and decrease noise levels; impacts from these projects would all be properly evaluated in accordance with regulations and the FDOT *PD&E Manual*. Development projects within the vicinity of the Krome Avenue corridor could be expected to increase noise levels. Collectively, the past, present, and reasonably foreseeable future actions could have an impact from noise within the area of influence, and this project could contribute to the unavoidable adverse effects. However, roadway projects such as the Krome Avenue project are often required for the safety of those traveling the roadway. Thus, the noise impacts, which have been minimized to the maximum extent practicable while still providing the necessary safety improvements, are considered an unavoidable and acceptable consequence.

Contamination

Contamination impacts from this project are discussed in [Section 4.3.8](#). The extent of contamination identified along the Krome Avenue (South) corridor (the areas directly adjacent and the lands adjoining) appears to be localized to the study area. Taking this into consideration, it is anticipated that the collective impact of the past, present, and reasonably foreseeable future FDOT projects will likely not contribute to unacceptable cumulative impacts from the localized contamination.

Wildlife and Habitat

Wildlife and habitat impacts are discussed in [Section 4.3.12](#). Other roadway and development projects within the vicinity of Krome Avenue could be expected to have a direct negative impact on wildlife and habitat as a result of increasing impervious surface areas and removal of natural habitat. However, impacts would have to be properly permitted and mitigated (within the same basin as the impacts), thus reducing the cumulative impact to wildlife and habitat in the region. Regional restoration, water management, and protected species plans and projects would have the effect of contributing to the preservation of high quality wildlife habitat within the same watersheds as the Krome Avenue project, while working to restore lower quality habitat back to a more natural historic state. Sheet flow within the region could also be expected to improve as a result of the proposed regional restoration and water management projects, which would likely





improve the quality of wildlife habitats. Collectively, the past present and reasonably foreseeable future actions could have both beneficial and adverse effects on wildlife and habitat within the area of influence. This project is only anticipated to contribute a negligible to minor increment to the cumulative effect.

Farmlands

A *Farmland Conversion Impact Rating for Corridor Type Projects* (Form NRCS-CPA-106) was completed for this project in coordination with the U.S. Department of Agriculture NRCS and farmlands impacts are considered minimal and below the acceptable threshold of impacts by the FDOT (see [Section 4.3.14](#)). All impacts to prime or unique farmlands from federal government projects (and state or local government projects with federal funding) are regulated by the U.S. Department of Agriculture NRCS under the Farmland Protection Policy Act, requiring prime or unique farmlands conversion to be considered in the project impact analysis. Therefore, collectively, the past, present, and reasonably foreseeable future actions would not be anticipated to have adverse cumulative impacts to farmlands within the area of influence.





5.0 COMMENTS AND COORDINATION

5.1 PUBLIC INVOLVEMENT PROGRAM

FDOT developed and carried out a Public Involvement Program as an integral part of this project. The purpose of this program was to establish and maintain communication with the public at large and the individuals and agencies concerned with the project and its potential impacts. To facilitate open communication and agency and public input, the FDOT provided early in the project process an AN package to state and federal agencies and other interested parties defining the project and, in cursory terms, describing anticipated issues and impacts. In addition, in order to expedite the project development processes, eliminate unnecessary work, and provide a substantial issue identification/problem solving effort, the FDOT has carried out the scoping process as required by the Council of Environmental Quality (CEQ) Guidelines.

Finally, in an effort to resolve all issues identified, the FDOT has conducted an extensive interagency coordination and consultation effort and public participation process. This document details the FDOT's program to fully identify, address, and resolve project related issues identified through the Public Involvement Program. Materials associated with public participation are referenced in this document and located in the Public Involvement Program *Appendix S*.

5.2 AGENCY COORDINATION

5.2.1 Notice of Intent

The Notice of Intent for the preparation of the Environmental Impact Statement was published in the Federal Register on November 1, 2005 and can be found in *Appendix T*.

5.2.2 Advance Notification Package

An AN Package describing the proposed project was distributed to federal, state and local agencies on February 27, 2004, and can be found in *Appendix U*. The AN was also furnished to the appropriate United States and state senators and representatives. The following agencies received individual AN packages. An asterisk (*) indicates those agencies that responded to the package either directly to the FDOT or through the Florida State Clearinghouse.

5.2.2.1 Advance Notification Agency Mailing List

Federal Agencies

- Federal Aviation Administration, Airport District Office*
- Federal Emergency Management Agency – Natural Hazards Branch, Chief
- Federal Emergency Management Agency – Region IV, Mitigation Division, Chief
- Federal Highway Administration, Division Administrator
- Federal Railroad Administration – Office of Economic Analysis, Director





- U.S. Army Corps of Engineers – Regulatory Branch, District Engineer, Jacksonville
- U.S. Army Corps of Engineers – Regulatory Branch, District Engineer, Miami
- U.S. Department of Commerce – National Marine Fisheries Service – Habitat Conservation Division, Area Supervisor, Panama City
- U.S. Department of Commerce – National Marine Fisheries Service – Habitat Conservation Division, Miami Field Office
- U.S. Department of Commerce – National Oceanic and Atmospheric Administration, Ecology and Conservation Office, Director
- U.S. Department of Health and Human Services – Center for Disease Control and Prevention*
- U.S. Department of Housing and Urban Development, Regional Environmental Officer
- U.S. Department of Interior – Bureau of Indian Affairs, Office of Trust Responsibilities, Chief
- U.S. Department of Interior – Bureau of Land Management – Eastern States Office, Director
- U.S. Department of Interior – Fish and Wildlife Services, Field Supervisor*
- U.S. Department of Interior – National Park Service – South Regional Office
- U.S. Department of Interior – U.S. Geological Survey, Chief
- U.S. Environmental Protection Agency – Region IV, Regional Administrator*
- U.S. Environmental Protection Agency – Region IV, Groundwater Technology and Management Section

State Agencies

- Florida Department of Community Affairs – Division of Growth Management*
- Florida Department of Environmental Protection, Florida State Clearinghouse
- Florida Department of Environmental Protection, Southeast District, Director
- Florida Department of Environmental Protection – Office of Intergovernmental Programs*
- Florida Fish and Wildlife Conservation Commission – Office of Environmental Services, Director
- Florida Fish and Wildlife Conservation Commission – South Region Director, West Palm Beach*
- Florida State Historic Preservation Officer*
- Florida Department of Transportation – Central Environmental Management Office, Manager
- Florida Department of Transportation – Federal-Aid Programs, Manager
- South Florida Regional Planning Council, Executive Director*
- South Florida Water Management District, Executive Director*

Tribal Governments

- Miccosukee Tribe of Indians of Florida – Land Resources Manager





Local Agencies

- Miami-Dade County Aviation Department, Director*
- Miami-Dade County Community and Economic Development Department, Director
- Miami-Dade County Department of Environmental Resources Management, Director*
- Miami-Dade County Department of Planning and Zoning, Director*
- Miami-Dade County Division of Public Works, Director
- Miami-Dade County Expressway Authority, Director
- Miami-Dade County Fire and Rescue, Director
- Miami-Dade County Manager
- Miami-Dade County Metropolitan Planning Organization, Director*
- Miami-Dade County Parks and Recreation Department, Director
- Miami-Dade County Office of Emergency Management, Director
- Miami-Dade County Office of Public Transportation Management, Director
- Miami-Dade County Police Department, Director
- Miami-Dade County Transit Agency, Director*
- Miami-Dade County Water Sewer Department, Director
- Miami-Dade County Department of Environmental Resources Management
Environmentally Endangered Lands Program, Manager

5.2.2.2 Advance Notification Summary of Agency Comments

The comments received on the 2004 AN package are summarized in the following paragraphs. The AN Package and comments can be found in [Appendix U](#).

Federal Agencies

U.S. Department of Health and Human Services

The U.S. Department of Health and Human Services had no project-specific comments. However, they recommend addressing in the NEPA documents areas of potential public health concern posed by the project.

U.S. Department of Interior, Fish and Wildlife Service

U.S. Department of Interior, Fish and Wildlife Service, indicated that the project area is within a Core Foraging Area for the wood stork. The nearest nest is approximately ten miles northwest of the project site. The Service believes that the loss of wetland within a Core Foraging Area due to an action could result in the loss of foraging habitat for the wood stork. In order to minimize adverse effects to the wood stork, it is recommended that any lost foraging habitat resulting from the project be replaced within the Core Foraging Area of the affected nesting colony.





U.S. Environmental Protection Agency

The USEPA noted that the project overlies the Biscayne Aquifer, a Sole Source Aquifer. However, if BMPs are followed, no adverse impacts to the Sole Source Aquifer are anticipated. Also, coordination should be conducted regarding potential sources of groundwater contamination in addition to documenting the presence or absence of Wellhead Protection Plans.

State Agencies

Florida Department of Environmental Protection

The FDEP indicated that the project needs to be evaluated for potential impacts to wetland, and consistency with the Comprehensive Everglades Restoration Plan. Also, it was noted that precautions need to be implemented for managing potentially contaminated areas. In addition, the Office of Intergovernmental Programs included the following comments:

- Environmental documentation should consider impacts to wetlands and agricultural for "the total project area at logical termini rather than by segmented analysis."
- The Contamination Screening Evaluations should outline specific procedures in the event of contaminated materials are encountered during construction

South Florida Regional Planning Council

The South Florida Regional Planning Council noted that the proposed project is consistent with the goals and policies of the Strategic Regional Policy Plan for South Florida. Project must be consistent with Miami-Dade County CDMF and should minimize impact to natural systems.

South Florida Water Management District

The SFWMD noted that relative to their permitting criteria, the following should be considered in the design, construction, and permitting of the project:

- The proposed roadway improvements will require an Environmental Resource Permit, pursuant to Rules 40E-1, 40E-4, 40E-40, 40E-41, and 40E-400, FAC.
- The proposed roadway improvements must meet the SFWMD's water quality and water quantity criteria, as specified in the Basis of Review for Applications.
- To the extent possible, any wetland impacts due to location, design, and construction techniques should be minimized. Please note that information documenting that any proposed wetland impacts are unavoidable will be required at the time of permit application, as well as information on the alternatives considered to reduce the proposed impacts. Mitigation will be required for any unavoidable wetland impacts.
- A Water Use Permit may be required for any dewatering activities associated with the proposed roadway improvements, pursuant to Rule 40E-2, FAC. Please contact the Water Use Division prior to the initiation of any dewatering activities and subsequent to the





completion of the *Contamination Screening Evaluation Report*, to schedule a pre-application conference to discuss the details of the proposed dewatering activities.

- If the proposed roadway improvements include dewatering activities within contamination areas or if the dewatering activities have the potential to result in the induced movement of the contamination plume, a pre-application meeting involving SFWMD Water Use staff and the appropriate staff from the FDEP should be scheduled to discuss management of dewatering effluent, including the design of appropriate containment/treatment methods.
- Any proposed work within the SFWMD's C-102 or C-103 Canal right-of-way will require a Right-of-way Occupancy Permit.
- Any proposed roadway improvements involving modifications to the existing bridge structures, will require a modification to Right-of-way Occupancy Permits no. 9120 (C-102) and 3179 (C-103). Also, any proposed bridge work must meet the SFWMD's bridge crossing criteria, as contained in the Criteria Manual for Use of Works of the District, Permit Information Manual Volume V.
- Evaluate project for consistency with the Comprehensive Everglades Restoration Plan improvements, specifically the C-111 and L-31W Projects (Krome South is within boundaries of C-111 project area).

Local Agencies

Miami-Dade County Aviation Department

The Miami-Dade County Aviation Department indicated that the project is compatible with operations from Kendall-Tamiami Executive and Homestead General Aviation Airports.

Miami-Dade County Department of Environmental Resources Management (now known as Miami-Dade County Department of Regulatory and Economic Resources, Environmental Monitoring and Restoration Division)

Miami-Dade County DERM noted the following comments concerning the proposed project:

- Coordinate with Miami-Dade Water and Sewer Department and City of Homestead Public Utilities regarding any water or sewer work required during the construction phase or any proposed water and sewer line installation in the project area.
- Provide 100-foot horizontal setback between stormwater treatment facilities and potable water supply (PWO) wells. A list of PWO facilities is provided along the project limits.
- Follow their recommendations for stormwater treatment and obtain necessary permits for stormwater and wetland impacts.
- DERM also provides list of DERM-permitted hazardous waste sites and grease operating permits (GDO).





Miami-Dade County Department of Planning and Zoning

The Miami-Dade County Department of Planning and Zoning noted that Application 16 (to amend CDMP to designate Krome a Major Roadway) was approved but has not been enacted pending ongoing legal challenge. This challenge has now been concluded and the project has been determined consistent with the CDMP. Also, coordination with Department of Planning and Zoning should include the binding access control plan, plan for expediting funding and construction, provision of a median and a plan for increased safety. The *Binding Access Control Plan* was submitted to Miami-Dade County in September 2012.

Miami-Dade County Metropolitan Planning Organization

The Miami-Dade County MPO, Bicycle Pedestrian Coordinator, noted that they have reviewed the commitments under the Krome Avenue Action Plan (as adopted by the MPO in 1999), which include an eight-foot shared-use path and an eight-foot unimproved equestrian trail.

Miami-Dade County Parks and Recreation Department (now known as Miami-Dade County Parks, Recreation, and Open Spaces Department)

The Miami-Dade County Parks and Recreation Department noted that there are not impacts to County parks or recreation lands.

Other Agencies

The following agencies replied with no comments: Federal Aviation Administration - Airport District Office, Florida DCA (now known as the FDEO) Division of Growth Management, Florida SHPO, Florida Office of Environmental Policy, Florida Fish & Wildlife Conservation Commission South Region in West Palm Beach, and Miami-Dade County Transit Agency.

5.2.3 Efficient Transportation Decision Making Screening

Agency coordination for this project was conducted through the FDOT ETDM process (ETDM #7800). Through this process, the FDOT informed a number of federal, state, and local agencies of the existence of this project and its scope. The ETDM process was designed to provide resource agencies and the public access to transportation project plans and information about potential effects on resources through an online interactive Environmental Screening Tool (EST), facilitating interaction among planners, regulatory and resource agencies, and affected communities to review and provide input on transportation projects. The ETDM process consists of three stages – Planning, Programming, and Project Development. Because the Krome Avenue project began before the full implementation of the ETDM process, the project was not screened in the Planning Phase, but rather was entered into the EST directly in the Programming Phase of the ETDM process. During the Programming Phase screening of the project that occurred between May 22, 2006 and July 6, 2006, each reviewing agency had the opportunity to comment on and assign a “Degree of Effect” to each project issue. A summary of the agency Degree of Effect ratings are provided in *Table 5-1*. Please refer to *Appendix V* for ETDM Summary Report





(originally published on October 4, 2007 and re-published on October 9, 2007, and September 20, 2010).

Table 5-1 – ETAT Degree of Effect Ratings

Issue	Agency	Degree of Effect
Air Quality	USEPA	Minimal
Coastal and Marine	No ETAT review	
Contamination	USEPA	Moderate
	FDEP	Moderate
Farmlands	No ETAT review	
Floodplains	No ETAT review	
Infrastructure	No ETAT review	
Navigation	No ETAT review	
Special Designations	No ETAT review	
Water Quality and Quantity	USEPA	Moderate
	FDEP	Moderate
Wetlands	USEPA	Moderate
	USACE	Minimal
	USFWS	Minimal
	National Marine Fisheries Service	None
	FDEP	Moderate
Wildlife and Habitat	USFWS	Minimal
	FWC	Moderate
Historic and Archeological Sites	FDOS	Moderate
Recreation Areas	FDEP	Moderate
Section 4(f) Potential	No ETAT review	
Aesthetics	FDOT Six	Moderate
Economic	FDOT Six	Enhanced
Land Use	FHWA	Moderate
	FDOT Six	Moderate
	FDCA	None
Mobility	FDOT Six	Enhanced
Relocation	FDOT Six	Moderate
Social	FDOT Six	Minimal
Secondary and Cumulative Effects	FWC	Moderate

At the conclusion of the Programming Phase of the ETDM process, the ETDM Coordinator for the project reviews all of the information received through the EST to make a determination about the potential level of impacts for each resource topic and assigns a Summary Degree of Effect rating. The Summary Degree of Effect ratings for this project are shown in **Table 5-2**.





Table 5-2 – ETDM Summary Degree of Effect Ratings

Issue	Summary Degree of Effect
Air Quality	None
Coastal and Marine	N/A / No Involvement
Contaminated Sites	Moderate
Farmlands	Minimal
Floodplains	None
Infrastructure	Minimal
Navigation	N/A / No Involvement
Special Designations	Moderate
Water Quality and Quantity	Minimal
Wetlands	Minimal
Wildlife and Habitat	Minimal
Historic and Archeological Sites	Minimal
Recreation Areas	Moderate
Section 4(f) Potential	Minimal
Aesthetics	Minimal
Economic	None
Land Use	Minimal
Mobility	Enhanced
Relocation	Minimal
Social	Minimal
Secondary and Cumulative Effects	Minimal

The substantive comments from the agencies, as well as the responses provided by FDOT through the EST, are provided in the section below. Eight agencies provided comments during the 2006 review period. The responses to the 2006 comments were documented in the ETDM Summary Report published in 2007. As the project continued to develop, the project was re-screened through the EST in 2010. Three additional comments were received from the 2010 review period, as noted below. Based on discussions with these three agencies, it was agreed that responses to the 2010 comments would be provided in the environmental document (this *Draft Environmental Impact Statement*). The ETDM Programming Summary Report with all of the agencies' comments is provided in [Appendix V](#).

Additional agency coordination and the resulting analyses and updates which were generated outside of ETDM and the EST can be found under each impact topic in Section 3 and Section 4 of this *Draft Environmental Impact Statement*. The project will be uploaded to the EST again for review during the public hearing phase of the project and responses will be documented in the culminating *Final Environmental Impact Statement*.





5.2.4 Summary of Agency Comments and Florida Department of Transportation Responses

5.2.4.1 Federal Agencies

Federal Highway Administration

COMMENT #1: “The project is located in a relatively undeveloped area that is primarily agricultural, and includes protected plant communities (pine rockland) that may be globally imperiled. The environmental document should assess secondary impacts to these areas, as well as cumulative impacts to agricultural lands, protected plant communities, and other natural resources.”

RESPONSE: The study corridor traverses farming and low-density residential communities. The FDOT has coordinated the evaluation of farmland conversion impacts for the project with the U.S. Department of Agriculture NRCS. A Corridor Assessment is currently being prepared by the FDOT to complete the Farmland Conversion Impact Rating for Corridor Type Projects form for resubmittal to the NRCS for final concurrence/approval.

Coordination is being conducted with the Miami-Dade EEL Program regarding potential impacts to the Owaissa Bauer Pineland Preserve Addition No. 1 parcel (protected pineland).

Also see Summary Degree of Effect for "Secondary and Cumulative Effects."

Land Use is addressed in this *Draft Environmental Impact Statement*.

U.S. Environmental Protection Agency

COMMENT #1: “The project is in an area designated as [a] non-Attainment area. An air quality study is needed to demonstrate that the project will not cause an exceedance of the [National Ambient Air Quality Standards].”

RESPONSE: In accordance with applicable FHWA guidelines and guidelines contained in the FDOT *PD&E Manual*, Part 2, Chapter 16 – Air Quality Analysis (dated September 13, 2006), potential air quality impacts in the area surrounding the project corridor were assessed for all viable project alternatives, including the No-Build Alternative. An *Air Quality Technical Memorandum* was prepared, which is on file at the FDOT District Six offices in Miami, Florida and is incorporated by reference.

The results of the CO screening analysis indicate that the proposed project is not expected to cause an exceedance of the one-hour or eight-hour NAAQS for CO (35 PPM and 9 PPM, respectively). The project passes the CO screening analysis, and air quality impacts resulting from the proposed project are not expected.

As of June 2005, Miami-Dade County has been designated as in attainment for all of the NAAQS under the criteria provided in the Clean Air Act. This project is also included in the





area's Transportation Improvement Program that has been approved by the Miami-Dade Metropolitan Planning Organization. Therefore, the project is located in an area which is designated as in attainment under the criteria provided in the Clean Air Act; the Clean Air Act conformity requirements do not apply to the project.

COMMENT #2: "Based on the ETDM data 134 acres of the Brownfield site (Redlands/Leasure City area) is within the 500' buffer zone for this site. Additionally there are more than 10 petroleum tanks and gasoline station sites within the same buffer. There is a potential of encountering contamination on this site. A site specific survey and study must be conducted to assess contaminant releases within the buffer zone. Based on the results of such assessment, appropriate measures must be taken during planning and construction to appropriately handle contaminated materials and to meet other site management requirements. DERM and FDEP must be consulted in interpreting contamination assessment data."

RESPONSE: A *Contamination Screening Evaluation Report* has been prepared for the project. Potentially contaminated sites, including those referenced above, were identified and assessed. The project corridor is located approximately 3,000 northwest of the closest brownfield area. If necessary, additional contamination assessments will be conducted during the final design phase of the project.

COMMENT #3: "Impact to surface water must be minimized by careful and thorough treatment of the surface water runoff. A complete hydrology study should be perform[ed] to define the qualitative and quantitative impact on the groundwater – surface water interaction."

RESPONSE: Miami-Dade County is underlain by the Biscayne Aquifer system, the sole source of potable water for most of southeastern Florida. All necessary precautions and BMPs pertaining to construction will be followed to prevent adverse impacts to the underlying sole source aquifer (Biscayne Aquifer). The AN response from the USEPA (dated June 30, 2004) concluded that the project should have no negative impacts to the sole source aquifer, if BMPs are employed. Both agencies recommended a study to evaluate the existing and future stormwater runoff conditions and effects. The FDEP also stressed the importance of treating stormwater runoff. Three areas identified as surface waters were identified within the study corridor. These areas consist of an inundated rock mining pit plus the SFWMD's C-102/Princeton and C-103/Mowry canals. Water quality impacts to these surface water areas resulting from potential upland erosion and sedimentation during construction activities will be controlled in accordance with the latest edition of FDOT's *Standard Specifications for Road and Bridge Construction* and through the use of BMPs, including temporary erosion control measures to fully comply with federal and state water quality standards. Furthermore, stormwater runoff will be treated prior to discharge per state and local stormwater management criteria and every effort will be made to maximize storage and treatment of stormwater. The project's stormwater facility design will include, at a minimum, the water quantity and quality requirements as required by Chapter 24, Section 24-58 of the Miami-Dade County Code. The Miami-Dade County requirements meet or exceed the state of Florida water quality and water quantity requirements. The proposed stormwater management system will be permitted through the SFWMD and will meet all required criteria for storage and treatment. Therefore, it is





anticipated that water quality within the proposed project area may improve due to the proposed stormwater treatment features.

COMMENT #4: “Based on the ETDM analysis, wetlands may be impacted with the proposed project. Impacts to wetlands must be minimized. Unavoidable impact must be fully mitigated.”

RESPONSE: No areas with characteristics indicative of jurisdictional vegetated wetlands or waters of the United States, as defined by Section 404 of the Clean Water Act, were observed within or adjacent to the project study area; therefore, no impacts to jurisdictional vegetated wetlands are anticipated as a result of this project. Three areas identified as surface waters were identified within the study corridor. These areas consist of an inundated rock mining pit located on the west side of Krome Avenue approximately 1,000 feet north of SW 208th Street; the SFWMDs C-102/Princeton canal which crosses Krome Avenue at approximately SW 196th Street; and the SFWMDs C-103/Mowry canal which crosses Krome Avenue just north of SW 280th Street. Nationwide authorization from the USACE will be applied for during the final design phase of the project for impacts to surface waters. These issues have been addressed in the *Wetland Evaluation Report* for the project.

National Marine Fisheries Service

COMMENT #1: “Based on the project location, information provided in the ETDM website, discussions with other agencies, and GIS-analysis on wetlands, and a site visit on June 18, 2006, [National Oceanic and Atmospheric Administration’s] National Marine Fisheries Service concludes the proposed work would not directly impact areas that support [National Oceanic and Atmospheric Administration] trust resources. We have no comments or recommendations to provide pursuant to the [Essential Fish Habitat] requirements of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) P.L. 104-297. Further consultation on this matter is not necessary unless future modifications are proposed and you believe that the proposed action may result in adverse impacts to [Essential Fish Habitat].”

RESPONSE: No response required.

U.S. Army Corps of Engineers

COMMENT #1: “Impacts to tributaries (canals) probable but should be minimal and qualify for a NW 14.”

RESPONSE: No areas with characteristics indicative of jurisdictional vegetated wetlands or waters of the United States, as defined by Section 404 of the Clean Water Act, were observed within or adjacent to the project study area; therefore, no impacts to jurisdictional vegetated wetlands are anticipated as a result of this project. Three areas identified as surface waters were identified within the study corridor. These areas consist of an inundated rock mining pit located on the west side of Krome Avenue approximately 1,000 feet north of SW 208th Street; the SFWMD’s C-102/Princeton canal which crosses Krome Avenue at approximately SW 196th Street; and the SFWMD’s C-103/Mowry canal which crosses Krome Avenue just north of SW





280th Street. Nationwide authorization from the USACE will be applied for during the final design phase of the project for impacts to surface waters. These issues have been addressed in the *Wetland Evaluation Report* for the project.

U.S. Fish and Wildlife Service

COMMENT #1: “Wetlands provide important habitat for fish and wildlife. If wetlands are found within the project area, we recommend that these valuable resources be avoided to the greatest extent practicable. If impacts to wetlands are unavoidable, we recommend the FDOT provide mitigation that fully compensates for the loss of wetland resources.”

RESPONSE: No areas with characteristics indicative of jurisdictional vegetated wetlands or waters of the United States, as defined by Section 404 of the Clean Water Act, were observed within or adjacent to the project study area; therefore, no impacts to jurisdictional vegetated wetlands are anticipated as a result of this project. Three areas identified as surface waters were identified within the study corridor. These areas consist of an inundated rock mining pit located on the west side of Krome Avenue approximately 1,000 feet north of SW 208th Street; the SFWMD’s C-102/Princeton canal which crosses Krome Avenue at approximately SW 196th Street; and the SFWMD’s C-103/Mowry canal which crosses Krome Avenue just north of SW 280th Street. Nationwide authorization from the USACE will be applied for during the final design phase of the project for impacts to surface waters. These issues have been addressed in the *Wetland Evaluation Report* for the project.

COMMENT #2: “...The Service has reviewed our GIS database for recorded locations of federally-listed Threatened and Endangered species on or adjacent to the project study area... The study corridor is located in the Core Foraging Areas (within 18.6 miles) of two active nesting colonies of the Endangered wood stork...”

RESPONSE: The majority of the corridor consists of land altered by human activities such as landscaped residential and commercial developments with maintained turf grass and ornamental shrubs and trees, agricultural lands (row crops and nurseries for landscape ornamental plants), and ruderal sites (roadsides, vacant lots, abandoned agricultural lands, and railroad rights-of-way). A protected pine rockland community known as Owaissa Bauer Pineland Preserve Addition No. 1 is located adjacent to the roadway corridor, and a privately-owned parcel, owned by the Florida Audubon Society, consists of planted rockland and coastal hammock species and is located at the southern terminus of the roadway corridor. In addition, three areas recognized as surface waters were identified within the study corridor. These areas consist of an inundated rock mining pit, the SFWMD's C-102/Princeton canal, and the SFWMD's C-103/Mowry canal.

Federally and state-listed wildlife species that may potentially occur along the study corridor have been evaluated in the ESBA, including the wood stork.

Issues raised by the USFWS and FWC have been addressed in the ESBA report for the project. Impacts to protected species are expected to be minimal. Coordination is being conducted with USFWS, FWC, FDACS, Miami-Dade County DERM EEL Program, and the Miami-Dade





County Park and Recreation Department Natural Areas Management Program to discuss avoidance/minimization efforts and potential mitigation.

COMMENT #3 (06/12/2011): “The Service concurs with the comments of the Florida Fish and Wildlife Conservation Commission. We further recommend that project can be designed to completely avoid impacts to the 9.39-acre Owaissa Bauer Pineland Preserve Addition 1, southeast of the SW 264th Street intersection.”

RESPONSE: Since complete avoidance of the EEL parcel was not possible, additional engineering analysis was conducted resulting in a “Minimization Treatment” that would reduce the potential impacts to the Owaissa Bauer Pineland Preserve Addition No. 1 site to the greatest extent practicable while maintaining safe engineering practices (i.e., roadway geometry, etc.). The minimization treatment reduces the overall proposed improvements to Krome Avenue at the Owaissa Bauer Pineland Preserve Addition No. 1 site by a linear distance range of 18 to 31 feet in width and reduces the impact area from a range of approximately 0.84 acres (Alternatives 1 and 2) to 1.27 acres (Alternative 3) to a minimum impact range of approximately 0.53 acres (Alternatives 1 and 2) to 0.82 acres (Alternative 3) depending on which build alternative the treatment is applied to. With the minimization treatment applied to Alternatives 1 and 2, an additional 0.31 acres of the Owaissa Bauer Pineland Preserve Addition No. 1 site will be preserved. With the minimization treatment applied to Alternative 3, an additional 0.45 acres of the site will be preserved. With the minimization treatment applied to Alternative 4, an additional 0.31 acres of the site will be preserved. With the minimization treatment applied to Alternative 5, an additional 0.26 acres of the site will be preserved. With the minimization treatment applied to the typical sections, the majority of remaining impacts will occur within the westernmost edge of the site, which appears to be regularly disturbed by mowing, vehicle off-road parking and pedestrian traffic. In addition, as part of the minimization treatment, several protection measures will be provided for the remainder of the Owaissa Bauer Pineland Preserve Addition No. 1 site through the addition of guardrail and possibly fencing along the Krome Avenue side of the site (pending approval from the Miami-Dade County EEL Program representatives). Impacts per each alternative to the EEL parcel have been assessed in the ESBA.

5.2.4.2 State Agencies

Florida Department of Environmental Protection

COMMENT #1: “Stormwater runoff from the road surface may alter adjacent wetlands and surface waters through increased pollutant loading. Natural resource impacts within and adjacent to the proposed road right-of-way will likely include alteration of the existing surface water hydrology and natural drainage patterns, and reduction in flood attenuation capacity of area creeks, ditches, and sloughs as a result of increased impervious surface within the watershed. Every effort should be made to maximize the treatment of stormwater runoff from the proposed road project to prevent ground and surface water contamination. Stormwater treatment should be designed to maintain the natural pre-development hydroperiod and water quality, as well as to protect the natural functions of adjacent wetlands.”





RESPONSE: Miami-Dade County is underlain by the Biscayne Aquifer system, the sole source of potable water for most of southeastern Florida. All necessary precautions and BMPs pertaining to construction will be followed to prevent adverse impacts to the underlying sole source aquifer (Biscayne Aquifer). The AN response from the USEPA (dated June 30, 2004) concluded that the project should have no negative impacts to the sole source aquifer, if BMPs are employed. Both agencies recommended a study to evaluate the existing and future stormwater runoff conditions and effects. The FDEP also stressed the importance of treating stormwater runoff. Three areas identified as surface waters were identified within the study corridor. These areas consist of an inundated rock mining pit plus the SFWMD C-102/Princeton and C-103/Mowry canals. Water quality impacts to these surface water areas resulting from potential upland erosion and sedimentation during construction activities will be controlled in accordance with the latest edition of FDOT's *Standard Specifications for Road and Bridge Construction* and through the use of BMPs, including temporary erosion control measures to fully comply with federal and state water quality standards. Furthermore, stormwater runoff will be treated prior to discharge per state and local stormwater management criteria and every effort will be made to maximize storage and treatment of stormwater. The project's stormwater facility design will include, at a minimum, the water quantity and quality requirements as required by Chapter 24, Section 24-58 of the Miami-Dade County Code. The Miami-Dade County requirements meet or exceed the state of Florida water quality and water quantity requirements. The proposed stormwater management system will be permitted through the SFWMD and will meet all required criteria for storage and treatment. Therefore, it is anticipated that water quality within the proposed project area may improve due to the proposed stormwater treatment features.

COMMENT #2: “The National Wetlands Inventory GIS report indicates that there are 81.07 acres of palustrine wetlands within 500 feet of the project area. The project will require an [Environmental Resource Permit] from the SFWMD. The [Environmental Resource Permit] applicant will be required to eliminate or reduce the proposed wetland resource impacts of the roadway widening project to the greatest extent practicable:

- Minimization should emphasize avoidance-oriented corridor alignments, wetland fill reductions via pile bridging and steep/vertically retained side slopes, and median width reductions within safety limits.
- Wetlands should not be displaced by the installation of stormwater conveyance and treatment swales; compensatory treatment in adjacent uplands is the leading alternative.
- After avoidance and minimization have been exhausted, mitigation must be proposed to offset the adverse impacts of the project to existing wetland functions and values. Significant attention is given to forested wetland systems, which are difficult to mitigate.
- The cumulative impacts of concurrent and future road improvement projects in the vicinity of the subject project should also be addressed.”

RESPONSE: Note that the 81.07 acres of palustrine wetlands identified through the GIS report are located entirely outside of the project limits and will not be impacted as a result of this project. Three areas identified as surface waters were identified within the study corridor. These areas consist of an inundated rock mining pit located on the west side of Krome Avenue approximately 1,000 feet north of SW 208th Street; the SFWMDs C-102/Princeton canal which





crosses Krome Avenue at approximately SW 196th Street; and the SFWMDs C-103/Mowry canal which crosses Krome Avenue just north of SW 280th Street. An Environmental Resources Permit will be applied for and obtained, prior to construction, for impacts to the three surface water areas and for the new stormwater management system. Alternatives will consider minimization of impacts to surface waters, while enhancing the safety and drainage needs of the facility. Because no jurisdictional wetland resources will be impacted as a result of this project, no mitigation is proposed. Also, any loss in functional values from unavoidable impacts to the existing rock mining pit and canal features (all with an almost non-existent littoral zone and sparsely vegetated side slopes) will be compensated with the construction of the new stormwater system which will include swale/dry retention areas conducive to the growth of hydrophytic vegetation. The proposed drainage system will have a net positive effect on the quality of water entering receiving waters and wetlands.

COMMENT #3: “The following public conservation lands are located in the vicinity of this project: the Mowry and Princeton Trails, Dade County Archipelago Florida Forever Project, Ingram Pineland, Camp Owaissa Bauer/Pineland, and the Mary Krome Bird Refuge. These lands contain significant natural communities and numerous element occurrences of listed species. Therefore, future environmental documentation should include an evaluation of the primary, secondary, and cumulative impacts of the proposed roadway widening on construction on the above public lands and any proposed acquisition sites.”

RESPONSE: While there are no Miami-Dade County public parks located directly on Krome Avenue, there are several Miami-Dade County neighborhood and local parks located in the vicinity of the study corridor in addition to the resources mentioned by the ETAT, including Oak Creek Park, Kings Grant Park, and Redland Fruit and Spice Park. The Everglades Archery Range and the Redland Golf and Country Club are also located in the vicinity of the study corridor.

Two unimproved SFWMD canal maintenance access roads bisect Krome Avenue within the study limits. One runs parallel to the C-103/Mowry Canal, just north of SW 280th Street. The second runs parallel to the C-102/Princeton Canal, at approximately SW 196th Street. Both of these are noted as potential future “greenways” on the 2009 Miami-Dade Open Space Master Plan Vision Map. These dirt roads are currently owned/maintained by the SFWMD for maintenance access to the adjacent canals. The SFWMD, the owner of these canal maintenance access roads, has no plans at this time for development of these canal maintenance access roads for trail use.

The Dade County Archipelago Florida Forever Project helps to conserve the subtropical pinelands and hardwood hammocks in Miami-Dade County. These sites, including the Miami Rockridge Pinelands (including Ingram Pineland) and the Owaissa Bauer Pinelands (including the Owaissa Bauer Pineland Preserve Addition No. 1) are administered through the Miami-Dade County DERM EEL Program.

Potential impacts to these areas have been fully evaluated and details have been included in Chapter 4 of this *Draft Environmental Impact Statement*.





COMMENT #4: “- Based on a review of National Priority List (NPL) / Superfund Sites, Solid Waste / Dump Site, Brownfield, and UST GIS data layers publicly available from the Florida Geographic Data Library, there are many potential contamination sites and hazardous materials sites present throughout the project area.

- Groundwater monitoring wells are likely present along and near the entire length of the project.
- Arrangements need to be made to properly abandon (in accordance with Chapter 62-532, FAC) and or replace any wells that may be destroyed or damaged during construction.
- There are numerous public supply wellfields in the project boundaries, with probably hundreds of water production wells (irrigation, potable, industrial). BMPs need to be used during all construction activities.
- In the event contamination is detected during construction, the FDEP and Miami-Dade County DERM should be notified and the FDOT may need to address the problem through additional assessment and/or remediation activities. Dewatering projects would require permits / approval from the SFWMD, Water Use Section and coordination with the Miami-Dade County DERM.
- Any land clearing or construction debris must be characterized for proper disposal. Potentially hazardous materials must be properly managed in accordance with Chapter 62-730, FAC. In addition, any solid wastes or other non-hazardous debris must be managed in accordance with Chapter 62-701, FAC.
- Please be advised that a new rule, 62-780, FAC, became effective on April 17, 2005. In addition, Chapters 62-770, 62-777, 62-782 and 62-785, FAC, were amended on April 17, 2005 to incorporate recent statutory changes. Depending on the findings of the environmental assessments, there are "off-property" notification responsibilities potentially associated with this project. These rules may be found at the following website: <http://www.dep.state.fl.us/waste/>
- Early planning to address these issues is essential to meet construction and cleanup (if required) timeframes. Innovative technologies, such as special storm water management systems, engineering controls and institutional controls, such as conditions on water production wells and dewatering restrictions, may be required, depending on the results of environmental assessments.
- Staging areas, with controlled access, should be planned in order to safely store raw material paints, adhesives, fuels, solvents, lubricating oils, etc. that will be used during construction. All containers need to be properly labeled. The project managers should consider developing written construction Contingency Plans in the event of a natural disaster, spill, fire or environmental release of hazardous materials stored / handled for the project construction.”

RESPONSE: All of these issues are being addressed in the *Contamination Screening Evaluation Report* for the project. If necessary, additional contamination assessments will be conducted during the final design phase of the project. The FDOT will adhere to all current federal, state and local government ordinances, permits, BMPs, planning, design, construction, operation, maintenance, monitoring requirements and engineering recommendations to protect the above and below ground environmental integrity of the roadway corridor and its general vicinity.





Potential impacts during construction (including waste handling and disposal) will be minimized through adherence to all state and local regulations and to the latest edition of the FDOT Standard Specifications for Road and Bridge Construction.

Florida Fish and Wildlife Conservation Commission

COMMENT #1: “Depending on which project Alternative is chosen and implemented, direct impacts on listed species and habitat resources could be moderate, while secondary and cumulative impacts would also be moderate.”

RESPONSE: The majority of the corridor consists of land altered by human activities such as landscaped residential and commercial developments with maintained turf grass and ornamental shrubs and trees, agricultural lands (row crops and nurseries for landscape ornamental plants), and ruderal sites (roadsides, vacant lots, abandoned agricultural lands, and railroad rights-of-way). A protected pine rockland community known as Owaissa Bauer Pineland Preserve Addition No. 1 is located adjacent to the roadway corridor, and a privately-owned parcel, owned by the Florida Audubon Society, consists of planted rockland and coastal hammock species and is located at the southern terminus of the roadway corridor. In addition, three areas recognized as surface waters were identified within the study corridor. These areas consist of an inundated rock mining pit, the SFWMD's C-102/Princeton canal, and the SFWMD's C-103/Mowry canal.

Federal and state-listed wildlife species and protected habitats that may potentially occur along the study corridor have been evaluated in the ESBA per each alternative, where appropriate.

Issues raised by the USFWS and FWC have been addressed in the ESBA report for the project. Impacts to protected species are expected to be minimal. Coordination is being conducted with USFWS, FWC, FDACS, Miami-Dade County DERM EEL Program, and the Miami-Dade County Park and Recreation Department Natural Areas Management Program to discuss avoidance/minimization efforts and potential mitigation.

COMMENT #2: “In lieu of a Build Alternative, we support a TSM Alternative ...”

RESPONSE: This alternative involves selectively upgrading deficient roadway areas with improved signage, turn lanes, pavement markings, and traffic signals. TSM intersection improvements have already been constructed along portions of the study corridor. However, this alternative will not satisfy the safety, capacity, and traffic operations improvement needs along this section of roadway. Short-term safety improvement projects were implemented at ten intersections along Krome Avenue within the study limits between the years 2003 to 2007.

- | | |
|---|---|
| • SW 136 th Street (2003-2004) | • SW 216 th Street (2007) |
| • SW 168 th Street (2003-2004) | • SW 256 th Street (2003-2004) |
| • SW 184 th Street (2007) | • SW 272 nd Street (2003-2004) |
| • SW 192 nd Street (2003-2004) | • SW 288 th Street (2007) |
| • SW 200 th Street (2007) | • SW 296 th Street (2007) |





These intersection improvements consisted of adding separate turn lanes or modifying pavement markings to delineate turn lanes. These improvements were anticipated to reduce crashes at the intersections with the exception of head-on and ran-off-the-road crashes. The TSM improvements did not substantially enhance the operation of the signalized intersections or safety issues associated with this corridor and did not include drainage improvements. The congestion along Krome Avenue is caused by a lack of through lane capacity and high turning volumes. Long-term improvements are necessary to mitigate the existing safety deficiencies, increase capacity to accommodate future travel demand, improve access management, and provide stormwater management. Therefore, further consideration of this alternative was eliminated from the analysis.

Federal and state-listed wildlife species and protected habitats that may potentially occur along the study corridor have been evaluated in the ESBA per each build alternative, where appropriate.

COMMENT #3: “Wildlife surveys for listed species should be performed ...”

RESPONSE: The majority of the corridor consists of land altered by human activities such as landscaped residential and commercial developments with maintained turf grass and ornamental shrubs and trees, agricultural lands (row crops and nurseries for landscape ornamental plants), and ruderal sites (roadsides, vacant lots, abandoned agricultural lands, and railroad rights-of-way). A protected pine rockland community known as Owaissa Bauer Pineland Preserve Addition No. 1 is located adjacent to the roadway corridor, and a privately-owned parcel, owned by the Florida Audubon Society, consists of planted rockland and coastal hammock species and is located at the southern terminus of the roadway corridor. In addition, three areas recognized as surface waters were identified within the study corridor. These areas consist of an inundated rock mining pit, the SFWMD's C-102/Princeton canal, and the SFWMD's C-103/Mowry canal.

Federal and state-listed wildlife species that may potentially occur along the study corridor have been surveyed for and evaluated in the ESBA.

Issues raised by the USFWS and FWC have been addressed in the ESBA report for the project. Impacts to protected species are expected to be minimal. Coordination is being conducted with USFWS, FWC, FDACS, Miami-Dade County DERM EEL Program, and the Miami-Dade County Park and Recreation Department Natural Areas Management Program to discuss avoidance/minimization efforts and potential mitigation.

COMMENT #4: “An in-depth preliminary assessment of incidental and cumulative impacts should be made on this project, and funds should be identified to address mitigation of secondary impacts and be included in the project budget.”

RESPONSE: The majority of the corridor consists of land altered by human activities such as landscaped residential and commercial developments with maintained turf grass and ornamental shrubs and trees, agricultural lands (row crops and nurseries for landscape ornamental plants), and ruderal sites (roadsides, vacant lots, abandoned agricultural lands, and railroad rights-of-





way). A protected pine rockland community known as Owaissa Bauer Pineland Preserve Addition No. 1 is located adjacent to the roadway corridor, and a privately-owned parcel, owned by the Florida Audubon Society, consists of planted rockland and coastal hammock species and is located at the southern terminus of the roadway corridor. In addition, three areas recognized as surface waters were identified within the study corridor. These areas consist of an inundated rock mining pit, the SFWMD's C-102/Princeton canal, and the SFWMD's C-103/Mowry canal. These areas do not contain viable wetland vegetation; therefore no mitigation is anticipated to be required for impacts to these areas. Coordination is being conducted with Miami-Dade County DERM EEL Program, and the Miami-Dade County Park and Recreation Department Natural Areas Management Program to discuss avoidance/minimization efforts and potential mitigation in relation to unavoidable impacts to the EEL parcel. This coordination is ongoing and will be updated in the *Final Environmental Impact Statement*.

Federal and state-listed wildlife species and protected habitats that may potentially occur along the study corridor have been evaluated in the ESBA per each build alternative, where appropriate.

COMMENT #5: “A plan should be formulated and implemented to avoid, minimize, or mitigate impacts to habitat and listed species based on the results of field surveys. An Incidental Take Permit may also be needed from our agency for the gopher tortoise and its commensal species.”

RESPONSE: The majority of the corridor consists of land altered by human activities such as landscaped residential and commercial developments with maintained turf grass and ornamental shrubs and trees, agricultural lands (row crops and nurseries for landscape ornamental plants), and ruderal sites (roadsides, vacant lots, abandoned agricultural lands, and railroad rights-of-way). A protected pine rockland community known as Owaissa Bauer Pineland Preserve Addition No. 1 is located adjacent to the roadway corridor, and a privately-owned parcel, owned by the Florida Audubon Society consists of planted rockland and coastal hammock species and is located at the southern terminus of the roadway corridor. In addition, three areas recognized as surface waters were identified within the study corridor. These areas consist of an inundated rock mining pit, the SFWMD's C-102/Princeton canal, and the SFWMD's C-103/Mowry canal.

Federal and state-listed wildlife species and protected habitats that may potentially occur along the study corridor have been evaluated in the ESBA per each build alternative, where appropriate. Mitigation measures for impacts is discussed, where necessary.

Coordination is being conducted with Miami-Dade County DERM EEL Program, and the Miami-Dade County Park and Recreation Department Natural Areas Management Program to discuss avoidance/minimization efforts and potential mitigation in relation to unavoidable impacts to the EEL parcel. This coordination is ongoing and will be updated in the *Final Environmental Impact Statement*.

COMMENT #6: “A complete accounting should be made of all upland and wetland plant communities within the project area, and compensatory mitigation should be required...”





RESPONSE: The majority of the corridor consists of land altered by human activities such as landscaped residential and commercial developments with maintained turf grass and ornamental shrubs and trees, agricultural lands (row crops and nurseries for landscape ornamental plants), and ruderal sites (roadsides, vacant lots, abandoned agricultural lands, and railroad rights-of-way). A protected pine rockland community known as Owaissa Bauer Pineland Preserve Addition No. 1 is located adjacent to the roadway corridor, and a privately-owned parcel, owned by the Florida Audubon Society, consists of planted rockland and coastal hammock species and is located at the southern terminus of the roadway corridor. In addition, three areas recognized as surface waters were identified within the study corridor. These areas consist of an inundated rock mining pit, the SFWMD's C-102/Princeton canal, and the SFWMD's C-103/Mowry canal.

Upland and wetland plant community inventories were conducted. Impact assessments and mitigation measures relating to the existing plants have been included in the ESBA, where appropriate.

Coordination is being conducted with Miami-Dade County DERM EEL Program, and the Miami-Dade County Park and Recreation Department Natural Areas Management Program to discuss avoidance/minimization efforts and potential mitigation in relation to unavoidable impacts to the EEL parcel. This coordination is ongoing and will be updated in the Final Environmental Impact Statement.

COMMENT #7: “Stormwater runoff into area wetland during construction ... should be contained to prevent water quality degradation and increased sedimentation.”

RESPONSE: The majority of the corridor consists of land altered by human activities such as landscaped residential and commercial developments with maintained turf grass and ornamental shrubs and trees, agricultural lands (row crops and nurseries for landscape ornamental plants), and ruderal sites (roadsides, vacant lots, abandoned agricultural lands, and railroad rights-of-way). A protected pine rockland community known as Owaissa Bauer Pineland Preserve Addition No. 1 is located adjacent to the roadway corridor, and a privately-owned parcel, owned by the Florida Audubon Society, consists of planted rockland and coastal hammock species and is located at the southern terminus of the roadway corridor. In addition, three areas recognized as surface waters were identified within the study corridor. These areas consist of an inundated rock mining pit, the SFWMD's C-102/Princeton canal, and the SFWMD's C-103/Mowry canal. Water quality degradation will be avoided during construction through the adherence to FDOT's latest edition of *Standard Specifications for Road and Bridge Construction*. All best management practices will be utilized during the construction phase of the project for erosion control and water quality considerations.

COMMENT #8 (6/12/2011): “Provided the project can be designed to completely avoid impacts to the 9.39-acre Owaissa Bauer Pineland Preserve Addition 1, southeast of the SW 264th Street intersection, we believe it will have minimal effects on fish and wildlife resources. We recommend that the PD&E Study address natural resources by including the following measures for conserving fish and wildlife and habitat resources that may occur within and adjacent to the project area. Plant community mapping and wildlife surveys for the occurrence of wildlife





species listed by the Federal Endangered Species Act as Endangered or Threatened, or by the state of Florida as Threatened or Species of Special Concern should be performed, both along the Right-of way and within sites proposed for Drainage Retention Areas. Based on the survey results, a plan should be developed to address direct, indirect, and cumulative effects of the project on wildlife and habitat resources, including listed species. Avoidance, minimization, and mitigation measures should also be formulated and implemented. Drainage Retention Areas and equipment staging areas should be located in previously disturbed sites to avoid habitat destruction or degradation. A compensatory mitigation plan should include the replacement of any wetland, upland, or aquatic habitat lost as a result of the project. This could be achieved by purchasing land, or securing conservation easements over lands adjacent to existing public lands, and by habitat restoration. Replacement habitat for mitigation should be type for type, as productive, and equal to or of higher functional value.”

RESPONSE: Since complete avoidance of the EEL parcel was not possible, additional engineering analysis was conducted resulting in a “Minimization Treatment” that would reduce the potential impacts to the Owaissa Bauer Pineland Preserve Addition No. 1 site to the greatest extent practicable while maintaining safe engineering practices (i.e., roadway geometry, etc.). The minimization treatment reduces the overall proposed improvements to Krome Avenue at the Owaissa Bauer Pineland Preserve Addition No. 1 site by a linear distance range of 18 to 31 feet in width and reduces the impact area from a range of approximately 0.84 acres (Alternatives 1 and 2) to 1.27 acres (Alternative 3) to a minimum impact range of approximately 0.53 acres (Alternatives 1 and 2) to 0.82 acres (Alternative 3) depending on which build alternative the treatment is applied to. With the minimization treatment applied to Alternatives 1 and 2, an additional 0.31 acres of the Owaissa Bauer Pineland Preserve Addition No. 1 site will be preserved. With the minimization treatment applied to Alternative 3, an additional 0.45 acres of the site will be preserved. With the minimization treatment applied to Alternative 4, an additional 0.31 acres of the site will be preserved. With the minimization treatment applied to Alternative 5, an additional 0.26 acres of the site will be preserved. With the minimization treatment applied to the typical sections, the majority of remaining impacts will occur within the westernmost edge of the site, which appears to be regularly disturbed by mowing, vehicle off-road parking and pedestrian traffic. In addition, as part of the minimization treatment, several protection measures will be provided for the remainder of the Owaissa Bauer Pineland Preserve Addition No. 1 site through the addition of guardrail and possibly fencing along the Krome Avenue side of the site (pending approval from the Miami-Dade County EEL Program representatives).

Federally and state-listed wildlife species that may potentially occur along the study corridor have been evaluated in the ESBA and the results have been summarized in this document.

No areas with characteristics indicative of jurisdictional vegetated wetlands or waters of the United States, as defined by Section 404 of the Clean Water Act, were observed within or adjacent to the project study area; therefore, no impacts to jurisdictional vegetated wetlands are anticipated as a result of this project. Three areas identified as surface waters were identified within the study corridor. These areas consist of an inundated rock mining pit located on the west side of Krome Avenue approximately 1,000 feet north of SW 208th Street; the SFWMDs C-102/Princeton canal which crosses Krome Avenue at approximately SW 196th Street; and the





SFWMDs C-103/Mowry canal which crosses Krome Avenue just north of SW 280th Street. Nationwide authorization from the USACE will be applied for during the final design phase of the project for impacts to surface waters. These issues have been addressed in the *Wetland Evaluation Report* for the project.

Florida Department of State

COMMENT #1: “Although this roadway has not been subjected to a systematic CRAS, several surveys undertaken by Dade County and the City of Homestead have recorded numerous historic buildings including two NR-listed resources, within the one-mile buffer. Most of these have not been evaluated by SHPO. Five buildings are located within the 100-foot buffer. Only one has been previously evaluated ... No archeological sites have been previously recorded within the one-mile buffer zone.”

RESPONSE: A CRAS has been conducted for this project and has been submitted to the SHPO for review. The CRAS and substantive correspondence has been included in this *Draft Environmental Impact Statement*.

South Florida Water Management District

COMMENT #1 (6/12/2011): “Wetlands and other surface waters, as defined by Chapter 62-340, Florida Administrative Code, must be identified, quantified and characterized during the permit review process. A secondary wetland impact analysis should also be completed during the [Environmental Resource Permit] permit process. Additionally, surveys for wetland dependent species utilization of the corridor must be completed during project review.”

RESPONSE: No areas with characteristics indicative of jurisdictional vegetated wetlands or waters of the United States, as defined by Section 404 of the Clean Water Act, were observed within or adjacent to the project study area; therefore, no impacts to jurisdictional vegetated wetlands are anticipated as a result of this project. Three areas identified as surface waters were identified within the study corridor. These areas consist of an inundated rock mining pit located on the west side of Krome Avenue approximately 1,000 feet north of SW 208th Street; the SFWMDs C-102/Princeton canal which crosses Krome Avenue at approximately SW 196th Street; and the SFWMDs C-103/Mowry canal which crosses Krome Avenue just north of SW 280th Street. A SFWMD [Environmental Resource Permit] will be applied for during the final design phase of the project for impacts to surface waters. These issues have been addressed in the *Wetland Evaluation Report* for the project.





5.2.5 Environmental Agency Meetings

As a result of the scoping meeting and to better define and address the concerns of federal and state environmental permit and review agencies, numerous contacts were made in the form of written correspondence and telephone contacts.

The agency update meeting held on September 10, 2012, generated one comment regarding connection to the proposed shared-use path. The suggested connection is beyond the limits of this project; however, the FDOT is incorporating the connection into the adjacent Krome Avenue project (FM # 249614-7-52-01).

Please refer to [Appendix W](#) for correspondence.

5.3 COMMUNITY OUTREACH

A team consisting of staff from the FDOT Intermodal Systems Development Office plus consultant team members met with numerous stakeholders (see [Table 5-3](#)) such as area residents, community associations, business owners, and various local and governmental agencies. The purpose of these meetings was to gain valuable insight about the potential impacts that this project might have on the community. The Public Involvement information and material in addition to the stakeholders' concerns and suggestions are documented in the Public Involvement Program in [Appendix S](#) and incorporated into the Krome Avenue project when possible.





Table 5-3 – Summary List of Meetings Held

Meeting Date	Name	Organization	Represents
10/20/03	Jose ‘Pepe’ Diaz	Miami-Dade County Commissioner	District 12
10/23/03	Ken Sorensen	State Representative	State District 120
10/30/03	David Rivera	State Representative	State District 112
10/30/03	Marcelo Llorente	State Representative	State District
11/05/03	Debbie Wasserman-Shultz	State Senator	State District
11/12/03	Joe Martinez	Miami-Dade County Commissioner	District 11
12/17/03	Mark Woerner, AICP	Miami-Dade County Planning Dept.	County Government
01/07/04	Bill Losner	1 st National Bank of South Florida	Landowners/Farmers
01/07/04	Mary Finlan	Greater Homestead/Florida City Chamber of Commerce	Local Businesses
01/08/04	Katy Sorenson	Miami-Dade County Commissioner	District 8
01/08/04	Redland Citizens’ Association	Redland Citizens’ Association	Redland Association
01/14/04	Dennis Moss	Miami-Dade County Commissioner	District 9
01/22/04	Rudy Garcia	State Senator	District 40
02/24/04	Richard Alger	Alger Farms Inc.	Farming Industries
02/24/04	Hector Hernandez	El Toro Taco	Business Owner
02/26/04	Paul Cardwell	Florida City State Farmers’ Market	Farming Industry
02/26/04	Brian Kimball	Ed Kimball & Sons Transportation Services Inc.	Trucking Industry
02/26/04	Eugene Leon, Project Manager	City of Florida	City government
02/26/04	State of Florida Department of Agriculture and Consumer Services	Department of Agriculture and Consumer Services	State of Florida
02/27/04	Juan Carlos Zapata	State Representative	State District 119
03/10/04	Transportation Aesthetics Review Comm.	Miami Dade County – MPO subcommittee	Local government
03/10/04	Miami-Dade County Farm Bureau	Farm Bureau	County
03/10/04	Katie Edwards	Dade County Farm Bureau	Farmers
03/10/04	Mike Richardson	Vision Council	Economic Development
04/06/04	Jorge Tojeiros	Property Owner	Area Resident
04/07/04	Rick Stauts	City of Homestead Community Redevelopment Agency	City Government
04/07/04	Margarita Mojica	Land Owner/Property Owner	Landowner
04/07/04	Juan Carlos Santiago	Rock & Sod Connection, Inc.	Nursery/Renters
04/30/04	National Park Service	US Department of the Interior	US Agency
04/30/04	Luis Silva	Property Owner	Property Owners
04/30/04	Bill Wright	Everglades National Park	National Park Service
05/03/04	Paul Dimare	Dimare inc.	Nursery
05/13/04	Medora Krome Alleman, et. al.	Concern Citizens and Nurseries Association	Landowner/Nursery
05/19/04	Community Council #11	Local Community Council	Local Zoning Board





Table 5-3 – Summary List of Meetings Held

Meeting Date	Name	Organization	Represents
05/27/04	Homestead / Fl. City Chamber of Commerce	Local Chamber of Commerce	Economic Development
06/08/04	Steve Kirk	Migrant Workers	Migrant Workers
06/14/04	Miguel Uzquiano	Florida Nurseryman & Grower Association	Nursery/Farmers
06/14/04	Alicia Pena	8.5 square mile area	Property Owner
06/30/04	CTAC	Miami Dade County – MPO Subcommittee	Local government
07/15/04	David Robbins	Americana Village	Homeowners Assoc.
07/21/04	Roundtable Scoping Meeting w/ Agencies	Jurisdictional agencies (all levels)	Governmental
08/03/04	Dewey Steele	Tropical Fruit Growers Association	Farming Industry
08/03/04	April Gromnicki	Florida Audubon Society	Environment
08/03/04	Cynthia Guerra	Tropical Audubon Society	Environment
08/04/04	Mary & Martin Motes	Orchid Growers Association	Orchid Industry
08/09/04	Paul Mulherne	Grove Inn and Guesthouse	Motel Owner
08/09/04	Carston and Carol Rist	Board Members of Tropical Audubon Society	Environment
08/19/04	Richard Grosso	Litigants in the Comprehensive Plan Amendment	Environment
08/25/04	Hammocks Citizen's Advisory Committee	Citizens Association	Citizens Association
09/16/04	Miccosukee Tribe of Indians of Florida	Sovereign Nation	Miccosukee Tribe
10/07/04	Homestead / Fl. City Empowerment Zone	Neighborhood Board	Economic Development
12/06/04	Kendall Federation of Homeowners	Homeowners Association	Citizens Association
01/12/05	Comprehensive Everglades Restoration Plan	Comprehensive Everglades Restoration Plan	State
02/01/05	Juan Carlos Zapata	State Representative	State District 119
03/15/05	Lt. Julio Pajon	FHP	US
06/17/05	Community Council #14	Local Community Council	Local Zoning Board
06/17/05	Vision Council Business Forum Regarding South Miami Dade Transportation Projects	Local Community Council	Local Zoning Board
07/20/05	Miami Dade County DERM	DERM	County
07/20/05	Owaissa Bauer (EEL) site	Environmentally Endangered Lands (EEL)	County
07/27/05	BPAC	Miami Dade county – MPO Subcommittee	Bike / Pedestrian
02/01/06	Denver Stutler, Jr.	FDOT Secretary	State FDOT
02/22/06	CTAC	Citizens Transportation Advisory Committee	Citizen Association
04/27/06	Owaissa Bauer (EEL) site	Environmentally Endangered Lands (EEL)	County
04/27/06	Miami Dade County DERM	DERM	County
04/27/06	South Miami Dade Watershed Study Advisory Committee	South Miami Dade Watershed Study Advisory Committee	Citizens Association
06/21/06	BPAC	Miami Dade county – MPO subcommittee	Bike / Pedestrian
08/12/06	United Citizens of South Link/United Citizens for Cutler Bay	Citizens Association	Citizens Association





5.3.1 Citizen's Advisory Committee

The Citizen's Advisory Committee is a stakeholder group reflecting the range of communities, organizations, groups and individuals who will be affected by decisions regarding improvements to Krome Avenue within the project limits. The purpose of the Citizen's Advisory Committee is to provide a range of stakeholder views regarding possible improvements to Krome Avenue and confirm they are clearly understood and fully considered by the project team. An additional purpose of the Citizen's Advisory Committee is to work with the project team toward the greatest degree of consensus possible on how to address the issues and needs that will be identified through the process. The formation of the Citizen's Advisory Committee is consistent with the federal law "Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users" (SAFETEA-LU), which provides for consultation with transportation safety stakeholders. Along with public input, the Citizen's Advisory Committee for this project was instrumental in the development and evaluation of the project typical sections, and the selection of the FDOT recommended alternative.

A Citizen's Advisory Committee Guidelines and Workplan Book was developed in order to promote a dynamic and constructive dialogue among the members with a particular focus on the issues concerning the community regarding this PD&E study. All Citizen's Advisory Committee meetings, agendas and minutes have been published on the project website. The agendas and minutes for each of the Citizen's Advisory Committee meetings are found in [Appendix X](#). The Citizen's Advisory Committee meeting dates and topics are detailed in the following list:

- December 9, 2004 Meeting #1: Organizational
- February 1, 2005 Meeting #2: Methodology and Data Review
- March 8, 2005 Meeting #3: Safety Analysis
- May 2, 2005 Meeting #4: Population and Traffic Demand Projections
- June 9, 2005 Meeting #5: Review Safety & Population Projection Information
- July 19, 2005 Meeting #6: Law Enforcement Policy & Operational Analysis
- January 24, 2006 Meeting #7: Alternatives Cross-Sections,
- February 28, 2006 Meeting #8: Review Revised Alternatives Cross-Sections,
- April 4, 2006 Meeting #9: Proposed Alignment/Alternatives Evaluation Matrix
- May 2, 2006 Meeting #10: Evaluation Matrix & Supplemental Considerations
- March 20, 2007 Meeting #11: Safety Data, FHHS Criteria, & Alternatives Analysis
- September 10, 2012 Meeting #12: Project Update and Introduction of Alternative 5

5.3.2 Project Newsletters

A project newsletter and fact sheet were developed and distributed to the Public Workshop participants. The project newsletter and fact sheet described the project need, project characteristics, project status, and the types of issues evaluated during the study, as well as explained what is involved with a PD&E study and the necessary actions to be taken to complete the study.





5.3.3 Project Website

A project website was developed and can be found on the internet at www.kromesouth.com. The website was established to provide the public access to the most current and up-to-date project information. This tool has provided the public with information regarding the project description, project objectives, alternatives, information about the Citizen's Advisory Committee meetings, public workshops, project photos, newsletters, and contact information. Also, it has served as a vehicle for the public to submit their comments directly to the project team.

5.3.4 Public Meetings

5.3.4.1 Public Informational Workshop

A Public Informational Workshop for this PD&E Study was held on May 31, 2006, from 5:30 to 8:30 pm at the Miami-Dade County John D. Campbell Agricultural Center Auditorium. In addition to the 312 property owners and Citizen's Advisory Committee members who received invitations to this workshop, the federal, state and local agencies were sent letters of invitation requesting their participation. The workshop was also advertised in English and Spanish in the local newspaper, The Miami Herald. As a result, more than 84 people attended the Public Information Workshop.

The purpose of the Public Information Workshop was to introduce the study and explain the objectives of this project to the community along the corridor. Aerial photographs incorporating the proposed alternatives, typical sections and alternatives matrices were displayed at the workshop. In addition, a PowerPoint presentation to introduce project information and details was presented. Each attendee was afforded the opportunity to discuss the project with the study team members and was also given the opportunity to comment and make suggestions during the one-on-one discussions. In addition, each attendee was presented with a comment card to complete. A total of 56 individual comments and one group comment with seven signatures was received subsequent to the meeting, by mail or through e-mail. Comments about the project were generally 79% percent in favor of the roadway widening and 19% against the project. About 2% expressed their project concerns about gaining a better understanding of the impacts. Cumulative percentages are shown in [Appendix Y](#). In addition, public information workshop materials have also been included in [Appendix Y](#).

In summary, the community was able to express their concerns and obtain answers to their questions through the public workshop. The project team used the information gathered from the meetings and workshop to concentrate on pressing issues and to the greatest extent practicable, incorporated this information into the study.

5.3.4.2 Public Hearing

A public hearing is planned for Winter 2013.





6.0 COMMITMENTS AND RECOMMENDATIONS

6.1 COMMITMENTS

In order to minimize the impacts of this project on the natural and human environment, the FDOT is committed to the following measures:

Engineering

1. The FDOT will reduce down to/only provide 1:10 longitudinal profiles in the roadside swales parallel to Krome Avenue, in the vicinity of the C-102 and the C-103 canals, to facilitate SFWMD maintenance vehicle access to the canals.
2. The FDOT will provide vertical headwalls with pedestrian/bicycle railings at the culvert crossing, in order to avoid impacting the S-194 structure on the C-103 canal.

Community Services

3. The FDOT is committed to continued coordination with hospitals, libraries, churches, and other community organizations in the project area through the development, final design, and construction phases of the project.
4. The FDOT is committed to initiating coordination with Miami-Dade County Public Schools during the design phase of the project to discuss the maintenance of traffic and other measures to ensure the safety of student pedestrians and to help minimize disruptions to school operations, including bus transportation.

Wildlife and Habitat

5. The FWC's *Standard Manatee Conditions for In-Water Work* will be employed during all in-water construction activities associated with this project.
6. The FDOT will incorporate the most current protection guidelines for the Eastern indigo snake, currently entitled *Standard Protection Protocols for the Eastern Indigo Snake*, into the final project design and will require that the construction contractor abide strictly to the guidelines during construction.
7. The FDOT's contractor will be advised of state and local laws regarding the harassment of alligators prior to any construction activities.

Owaissa Bauer Pineland Preserve Addition No. 1

8. The FDOT will apply the Owaissa Bauer "Minimization Treatment" to final design of the selected alternative.
9. During the final design phase of the project, in order to approve a proposed easement within the Owaissa Bauer Pineland Preserve Addition No. 1 parcel, the FDEP requires submittal of the "Upland Easement Application" to the State of Florida Board of Trustees of the Internal Improvement Trust Fund for review to apply for easement interest in the





- land. A mitigation plan will also be required that will be sufficient to compensate for any potential impacts to protected resources resulting from the proposed project.
10. To minimize the potential for adverse impacts to listed plant species at the Owaissa Bauer Pineland Preserve Addition No. 1 site along the project corridor, the FDOT will reassess the viability of relocating listed plant species to a suitable area outside of the planned limits of construction, such as other graminoid-dominated areas of the site where these species are known to currently occur. The relocations, if determined to be viable, will be conducted just prior to commencement of roadway construction activities.
 11. Florida tree snails were observed on vegetation at the Owaissa Bauer Pineland Preserve Addition No. 1. Prior to vegetation removal or construction activities, FDOT will conduct a biological survey within the limits of the proposed project. Individual snails observed on the trees to be impacted will be collected and relocated a safe distance outside of the areas of proposed impact per FWC guidelines (Shaw, 2006, Tree Snail Relocation Protocol).
 12. The FDOT's contractor will install temporary construction fencing at the limits of construction along the Owaissa Bauer Pineland Preserve Addition No. 1 for plant protection purposes and maintain the temporary construction fencing until completion of construction at this location; no impacts will occur to vegetated areas outside of the limits of construction in accordance with the *FDOT Standard Specifications for Road and Bridge Construction (Section 7-11.1, Preservation of Property)*.
 13. St. Augustine grass will not be planted in the FDOT right-of-way along the Owaissa Bauer Pineland Preserve Addition No. 1 site to avoid future encroachment of this landscaping grass into the adjacent natural areas.

Florida Audubon Society Property

14. Due to its use for bird watching (as designated by the private owner), the Florida Audubon Society property could be considered especially sensitive to construction noise and/or vibration; therefore, a reassessment of the project corridor for construction-related noise/vibration impacts to such sites will be performed during design in an attempt to minimize impacts to such sites.
15. To minimize the potential for adverse impacts to listed plant species at the Florida Audubon Society property along the project corridor, the FDOT will reassess the viability of relocating listed plant species to a suitable area outside of the planned limits of construction. The relocations, if determined to be viable, will be conducted just prior to commencement of roadway construction activities.
16. The FDOT's contractor will install temporary construction fencing at the limits of construction along the Florida Audubon Society property for plant protection purposes and maintain the temporary construction fencing until completion of construction at this location; no impacts will occur to vegetated areas outside of the limits of construction in accordance with the *FDOT Standard Specifications for Road and Bridge Construction (Section 7-11.1, Preservation of Property)*.
17. St. Augustine grass will not be planted in the FDOT right-of-way along the Florida Audubon Society property to avoid future encroachment of this landscaping grass into the adjacent natural areas.





Contamination

18. If the project is determined to impact any existing groundwater monitoring wells associated with adjacent sites/facilities, arrangements with the owner of the monitoring wells will be made to properly abandon (in accordance with Chapter 62-532, FAC) and/or replace any wells that may be destroyed or damaged during construction.

Noise

19. Coordination between the FDOT and the owners of any noise or vibration sensitive sites identified during design should occur and Technical Special Provisions should be developed for the project's contract package in an attempt to minimize impacts to such businesses.

6.2 RECOMMENDATIONS

Recommendations will be provided after the public hearing for the project.





7.0 LIST OF PREPARERS

Table 7-1 – Draft Environmental Impact Statement List of Preparers

Personnel	Experience
Federal Highway Administration	
Gregory E. Williams, P.E. District Transportation Engineer	B.S. in Civil Engineering, with nine years of experience with the FDOT and seven years of experience with Federal Highway Administration.
George Hadley Environmental Program Coordinator	B.S. in Civil Engineering, with 26 years of experience involving environmental policy development and implementation, and NEPA documentation preparation and review.
Cathy Kendall, AICP Interim Environmental Coordinator FHWA-FL, PR and VI	M.S. in Urban & Regional Planning, B.S. in Economics; 17 years of transportation and land use planning at the local, state and federal level, and seven years of federal NEPA experience.
Florida Department of Transportation	
Aileen Boucle, AICP District Planning, Project Development & Environmental Manager	M.S. in Environmental & Urban Systems, BBA in Finance, with 13 years of experience in Transportation Planning.
Barbara B. Culhane, AICP Senior Environmental Project Manager	M.S. and B.S. degrees in Biology, with 23 years of experience in PD&E studies, NEPA documentation, and environmental permitting.
Vilma Croft, P.E. Senior Project Manager	B.S. in Civil Engineering, with 28 years of experience in transportation related projects including 14 years in PD&E studies.
Catherine Owen Environmental Manager	B.S. and M.S. degrees in Biology, with 17 years of experience in PD&E studies, and NEPA documentation.
Xavier Pagan Environmental Scientist	B.S. and M.S. degrees in Biology, with five years of experience in PD&E studies, and NEPA documentation.
Jorge Gomez, P.E. Project Manager	B.S. in Civil Engineering and M.S. in Engineering Management with six years of experience in PD&E studies and NEPA documentation.
Jeannine Gaslonde, E.I. Project Manager	B.S. in Civil Engineering with five years in PD&E studies and NEPA documentation.
Dat Huynh, P.E. District Project Development Engineer	B.S. in Civil Engineering with 18 years of experience in Construction, PD&E Studies and Design.
Susanne Travis Senior Environmental Scientist	B.S. and M.S. degrees in Forestry; M.L.A. degree in Landscape Architecture with ten years of experience in PD&E studies and NEPA documentation, and five years of experience in environmental permitting.
URS Corporation	
Julio Bouclé, P.E. Project Manager	M.S. in Civil Engineering, B.S. in Civil Engineering, with 26 years of experience in Transportation Engineering and Planning, PD&E studies, and NEPA documentation.
Ana Sandoval, P.E. Senior Engineer	B.S. in Civil Engineering with 15 years of experience in traffic engineering and PD&E Studies.
Maria Teresita Vilches-Landa, P.E. Senior Engineer	M.S. in Environmental Engineering, B.S. in Civil Engineering, with 15 years of experience in planning, PD&E studies, and NEPA documentation.





Table 7-1 – Draft Environmental Impact Statement List of Preparers

Personnel	Experience
Jenn L. King, P.E. Senior Engineer	B.S. in Civil Engineering with 15 years of experience in drainage and roadway design, traffic engineering and PD&E Studies
Juan C. Garcia, P.E. Drainage Engineer	B.S. in Civil Engineering with 24 years of experience in stormwater management design.
Rajendran Shanmugan, P.E. Transportation Engineer	M.S. in Civil/Transportation Engineering with 28 years of experience in transportation engineering, planning, traffic analysis, and documentation.
Domingo Noriega, P.E. Transportation Engineer	B.S. in Civil Engineering with 25 years of experience in transportation/traffic engineering.
John F. Arrieta, P.E. Traffic Engineer/Transportation Planner	M.E. in Civil/Transportation Engineering, B.S. in Civil Engineering with 16 years of experience in traffic engineering and transportation planning.
Martin A. Peate, AICP Senior Transportation Planner	M.S.P. in Environmental Planning and Resource Management, B.S. in Political Science with 19 years of experience in corridor planning and USEPA documentation for roadways, transit and port facilities.
Olguita Sabagh-Karam Project Engineer	M.S. & B.S. in Industrial Engineering with six years of experience in Public Involvement and Transportation Planning.
Vickie A. Scott, AICP Senior Planner	B.S. in Geography with 29 years of experience in environmental analysis and document preparation, including several NEPA Classes of Action.
Keith Stannard Director of Ecological Program	B.S. in Biological Sciences with 20 years of experience in conducting environmental analyses, evaluating ecological processes, and technical document preparation, including various NEPA Classes of Action and other ancillary documents.
Michael Breiner Assistant Director of Ecological Program	A.A.S. in Fish & Wildlife Management with 30 years of experience in wetlands ecology and threatened/endangered species studies, including preparation of NEPA ancillary documents.
Valerie Chartier Senior NEPA Specialist/Environmental Scientist	M.B.A. in Environmental Management and B.S. in Environmental Science with nine years of experience in environmental analysis and document preparation, including various NEPA documents.
Damon Quesenberry Environmental Scientist	B.S. in Environmental Management with eight years of experience in environmental analysis, GIS mapping and document preparation, including various NEPA ancillary documents.
Babu Madabhushi Project Engineer/Environmental Specialist	Ph.D. in Hazardous Waste Management, M.S. in Wastewater Treatment, B.S. in Civil Engineering with ten years of experience in hazardous/solid waste assessments, remediation, and document preparation, including various NEPA ancillary documents.
Carlos F. Garcia, P.G. Senior Environmental Specialist	M.S.T. in Biological Sciences, B.S. in Geology with 25 years of experience in conducting hazardous and solid waste assessments, remediation, and document preparation, including various NEPA documents.





Table 7-1 – Draft Environmental Impact Statement List of Preparers

Personnel	Experience
Irving M. Day IV Senior Environmental Scientist	M.S. in Environmental Sciences and a B.S. in Geography (Urban and Regional Planning) with 11 years of experience in transportation related planning studies.
Edward Marks Environmental Scientist	B.S. in Geological Sciences, B.S. in Environmental Science with ten years of experience in geological/environmental analysis and document preparation, including various ancillary NEPA documents.
Odessa Bowen Environmental Scientist	M.A. in Marine Affairs and B.S. in Marine Sciences and Biology with ten years of experience in conducting environmental analyses, assessing ecological processes, and technical document preparation, including various NEPA and other ancillary documents.
Erick Revuelta	B.A. in Environmental Science with nine years of experience in natural resource management and regulatory permitting.
The Corradino Group	
Mike Ciscar, P.E. Deputy Project Manager	B.S. in Civil Engineering with 25 years of experience in transportation planning, PD&E, NEPA documentation, environmental permitting, and expert witness.
Ryan Solis-Rios, P.E., PTOE Project Development Engineer	B.S. in Civil Engineering with 14 years of experience conducting planning and PD&E studies from data collection, engineering and environmental analysis to final documentation.
Michael Colucci, P.E.	B.S. in Civil Engineering with 13 years of experience in transportation planning, and civil and transportation engineering.
Krystal Fowler Project Designer	B.S. in Civil Engineering with four years of experience in Roadway Design and Document QA/QC.
Barbara C. Rodriguez Public Involvement Coordinator	Ten years of experience in coordination of public involvement for the PD&E projects.
Pritchard Environmental	
Christine Pritchard Senior Environmental Scientist	B.S. degree in Physical Geography and 25 years of experience in environmental analysis and environmental document preparation.
Richard Garcia & Associates Inc.	
Richard Garcia, P.E. Traffic Engineer	M.S. and B.S. in Civil Engineering with 17 years of experience in transportation and traffic engineering.
Berger Singerman, PA	
Daniel H. Thompson, J.D. Attorney at Law	Attorney practicing environmental and land use law since 1981 with special expertise in the area of cumulative and indirect impacts of development, particularly road widening projects.
Florida Conflict Resolution Consortium at University Of Central Florida	
Rafael Montalvo Associate Director	M.S. degree in Urban and Regional Planning, B.S. in History & German with 16 years of experience in all aspects of the design, facilitation, and implementation of large scale consensus-building, dispute resolution, and public participation processes. He has worked on numerous projects throughout the state on issues ranging from formulation of new statewide planning legislation and transportation policy to building consensus at the community level on uses for former naval base land transferred to local control.





8.0 LIST OF AGENCIES, ORGANIZATIONS, AND PERSONS TO WHOM COPIES OF THE STATEMENT ARE SENT

8.1 ELECTED OFFICIALS

- U.S. House of Representatives, District 25
- U.S. Senator (two)
- Florida House of Representatives, District 116
- Florida House of Representatives, District 119
- Florida House of Representatives, District 120
- Florida State Senator, District 34
- Florida State Senator, District 38
- Miami-Dade County Board of County Commissioners, District 1-13
- Miami-Dade County Mayor

8.2 FEDERAL AGENCIES

- Advisory Council on Historic Preservation, Office of Cultural Resources Preservation
- Colorado State University, The Libraries, Documents Librarian
- Federal Aviation Administration, Airport District Office
- Federal Aviation Administration – Regional Administrator
- Federal Emergency Management Agency – Assoc. General Counsel for Insurance and Mitigation
- Federal Emergency Management Agency – Natural Hazards Branch, Chief
- Federal Emergency Management Agency – Region IV, Flood Insurance and Mitigation Division, Director
- Federal Highway Administration, Division Administrator
- Federal Railroad Administration – Office of Economic Analysis, Director
- U.S. Army Corps of Engineers – Regulatory Branch, District Engineer, Jacksonville
- U.S. Army Corps of Engineers – Regulatory Branch, District Engineer, Miami
- U.S. Coast Guard – Commander (oan) – Seventh District
- U.S. Department of Agriculture – Natural Resources Conservation Services, State Conservationist
- U.S. Department of Agriculture – Southern Region, Regional Forester
- U.S. Department of Commerce – National Marine Fisheries Service – Habitat Conservation Division
- U.S. Department of Commerce – National Marine Fisheries Service – Miami Field Office
- U.S. Department of Commerce – National Marine Fisheries Service – South Regional Office
- U.S. Department of Commerce – National Oceanic and Atmospheric Administration, Ecology and Conservation Office, Director
- U.S. Department of Health and Human Services – Center for Environmental Health and Injury Control





- U.S. Department of Housing and Urban Development, Regional Environmental Officer
- U.S. Department of Interior – Bureau of Indian Affairs, Office of Trust Responsibilities
- U.S. Department of Interior – Bureau of Land Management – Eastern States Office, Director
- U.S. Department of Interior – Fish and Wildlife Services, Field Supervisor
- U.S. Department of Interior – National Park Service – South Regional Office
- U.S. Department of Interior, Office of Environmental Policy and Compliance, Director
- U.S. Department of Interior – U.S. Geological Survey, Chief
- U.S. Department of State – Office of Environmental, Health and Natural Resources
- U.S. Environmental Protection Agency – Region IV, Regional Administrator
- U.S. Environmental Protection Agency, Washington, D.C.

8.3 STATE AGENCIES

- Florida Department of Community Affairs – Division of Growth Management
- Florida Department of Environmental Protection, Florida State Clearinghouse
- Florida Department of Environmental Protection, Southeast District, Director
- Florida Department of Health, Division of Environmental Health
- Florida Department of State, Division of Historical Resources
- Florida Fish and Wildlife Conservation Commission – Office of Environmental Services, Director
- Florida Fish and Wildlife Conservation Commission – South Region Director, West Palm Beach
- Florida Department of Transportation – Central Environmental Management Office, Manager
- Florida Department of Transportation – Federal-Aid Programs, Manager
- South Florida Regional Planning Council, Executive Director
- South Florida Water Management District, Executive Director

8.4 TRIBAL GOVERNMENTS

- Miccosukee Tribe of Indians of Florida – Land Resources Manager
- Seminole Tribe of Florida

8.5 LOCAL AGENCIES

- Miami-Dade County Aviation Department, Director
- Miami-Dade County Community and Economic Development Department, Director
- Miami-Dade County Department of Environmental Resources Management, Director
- Miami-Dade County Department of Planning and Zoning, Director
- Miami-Dade County Division of Public Works, Director
- Miami-Dade County Expressway Authority, Director
- Miami-Dade County Fire and Rescue, Director





- Miami-Dade County Manager
- Miami-Dade County Metropolitan Planning Organization, Director
- Miami-Dade County Parks and Recreation Department, Director
- Miami-Dade County Office of Emergency Management, Director
- Miami-Dade County Office of Public Transportation Management, Director
- Miami-Dade County Police Department, Director
- Miami-Dade County Transit Agency, Director
- Miami-Dade County Water Sewer Department, Director
- Miami-Dade County Environmentally Endangered Lands Program, Director





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